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Output Decline in Hungary and Poland in 1990-91

Structural Change and Aggregate Shocks

Simon Commander
and
Fabrizio Coricelli

Two different paths to reform appears to have led to two different outcomes in economic performance. What are the lessons?

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This paper — a joint product of the National Economic Management Division, Economic Development Institute, and the Transition and Macro-Adjustment Division, Country Economics Department — was presented at the conference on the "Macroeconomic Situation in Eastern Europe," organized by the IMF and the World Bank, and held in Washington, DC in June 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Olga del Cid, room M3-047, extension 35195 (November 1992, 44 pages).

Commander and Coricelli try to distinguish between general and national features in explaining the impulse, transmission channels, and path of output decline in Hungary and Poland.

It is clear that output losses are massively concentrated in the socialized industrial sectors, but they identify significant differences in the distribution of those losses and their associated employment outcomes; in the timing and degree of synchronization of those losses; and in the two countries' different policy responses to these powerful recessionary pressures.

In particular, they try to separate shocks particular to a sudden (Polish) big bang and those attributable to a more gradual path of reform (Hungary).

The contrast between Hungary and Poland is less robust than initial impressions led one to expect. By 1991, both economies have open trade regimes, and a practically fully liberalized price system.

The magnitude of shocks to both economies and the accompanying macroeconomic policies clearly diverged. The role of macroeconomic policies was easier to isolate in 1990, before the full effects of the CMEA shock could be felt. Interestingly, in 1990, the decline in output was far smaller in Hungary than in Poland, and was of rather a different nature. In 1990, employment declined more rapidly than output in Hungary, but lagged sharply behind output in Poland. So productivity increased, albeit marginally, in Hungary, while declining sharply in Poland. Contrary to expectations, the Polish big bang approach has produced less adjustment than the more gradual approach followed by Hungary.

One reason for this could be the lack of progress on microeconomic reforms that have accompanied the drastic shift in macroeconomic policies. But Commander and Coricelli suggest that this result could also be associated with the two different paths to reform, the big bang and gradualism.

OUTPUT DECLINE IN HUNGARY AND POLAND IN 1990/1991: Structural Change and Aggregate Shocks *

by

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The World Bank

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I. Introduction

Large falls in output have occurred in 1990 and 1991 throughout the former socialist economies of Eastern Europe. In some instances, this follows from a period of sharp prior deceleration in growth. In all cases, output decline appears persistent. It is generally held that this decline is closely associated with the collapse of the CMEA trading arrangement and with contraction in demand for Eastern Europe's exportables by the former Soviet Union. The apparently generalized nature of this negative shock can also be seen in other economies-- such as Finland--that have been closely integrated with the former Soviet Union. The timing and incidence of these output declines have, however, been somewhat varied. At cursory inspection, the scale of output loss has been highest in those economies that remained until 1990/91 largely centrally planned systems; Bulgaria and Russia provide the clearest examples. But in the two cases that are the subject of this paper--Hungary and Poland--where partial reforms and trade diversification away from CMEA partners had proceeded furthest prior to 1990, output decline has been of large magnitude and apparent persistence. By end 1991 GDP had fallen by 12% over 1989 levels in Hungary and by 20% in Poland. These common outcomes seem to support a view that emphasizes the generalized nature of the recession.

In this paper, we attempt to distinguish over those features that are distinctive and those that are general in explaining the impulse, transmission channels and path of output decline in these two economies. While it is clear that output losses are massively concentrated in the socialized industrial sectors in both economies, we pick out significant differences in the distribution of those losses and their associated employment outcomes; in the timing and degree of synchronisation of those losses and in the differential policy response to these powerful recessionary pressures. In particular, we attempt to separate out shocks particular to a sudden--Polish big bang--rather than a more gradual path of reform, as adopted in Hungary. We do not aim at evaluating the overall reform program carried out by the two countries. Our focus is narrower, as we concentrate on the behavior of output. Moreover, the nature of the paper is mainly comparative. We do not provide an exhaustive, in depth, analysis of each of the two economies--analysis which is available in the growing literature on the subject. [1] The main objective of this paper is to draw lessons from the comparison of two different paths to reform and two different performances.

Contrary to initial impressions, the contrast between Hungary and Poland is less robust. By 1991 both economies are characterized by a practically fully liberalized price system, by a high degree of trade openness and by independent central banks. Despite broad similarities, we argue that there are important aspects differentiating the path to reform followed by the countries, and that these aspects are not simply related to different initial conditions. Specifically, we note a clear difference in what Bruno (1992) calls the "price shock," and the policies accompanying it. In Poland the liberalization of prices and the increase in administered prices were accompanied by a simultaneous tightening of credit policy, and by a large devaluation of the exchange rate. In Hungary, the "price shock" was diluted over time and was not associated with large exchange rate devaluations. Moreover, the price level jump was not accompanied by a sharp tightening of credit policy. Important differences also relate to the speed of trade liberalization, which was much faster in Poland.

The magnitude of shocks to both economies and the accompanying macroeconomic policies

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[1] See among others, Berg and Sachs (1992), Calvo and Coricelli (1992), Coricelli and Rocha (1991), Dervis and Condon (1992), Frydman, et al. (1990), Kolodko (1991), Lipton and Sachs (1990).

clearly diverged. The role of macroeconomic policies can be better isolated in 1990, before the CMEA shock displayed its full effects. Interestingly, in 1990 the decline in output in Hungary was far smaller than in Poland and was of rather different nature. It is revealing to note that in 1990 employment declined more rapidly than output in Hungary, while lagging output very sharply in Poland. Consequently, productivity increased, albeit marginally, in Hungary, while it declined sharply in Poland. This suggests that in 1990, prior to the full impact of the CMEA shock, adjustment accompanied output decline in Hungary but not in Poland. Thus, contrary to expectations, the Polish big bang approach has produced less adjustment than the more gradual approach followed by Hungary. One reason for this outcome could be the lack of progress on the microeconomic reforms which has accompanied the drastic shift in macroeconomic policies. However, we suggest that this result could be also associated with the different paths to reform, namely the big bang and gradualism, followed by the two countries. Specifically, the initial aggregate shock imparted to the Polish economy, by causing financial difficulties across the board might have produced the undesirable result of putting "bad" and "good" firms in similar conditions. Consequently, firms might have perceived that the incentives for adjustment, induced by the threat of bankruptcy, were not very strong. [2] Indeed, the threat of a wholesale bankruptcy, involving a large proportion of state enterprises, was unlikely to be credible. Besides the political implications, pure fiscal reasons would have made not feasible this wholesale bankruptcy. [3] Paradoxically, the desired shake out of the industrial sector, the adjustment to the new set of relative prices, did not materialize. The underdevelopment of financial markets, with their screening capabilities, might have contributed to this outcome. In addition, inherited linkages between enterprises through the interenterprise credit market, and between enterprises and banks likely exacerbated the problem, increasing the degree of "noise" in the system. Soon after the initial scare, firms began increasing wages; moreover, the employment adjustment was modest compared to the decline in output. Credit was increasingly absorbed by troubled firms, as shown by the capitalization of interest rates. End-game behaviors clearly surfaced, jeopardizing the credibility of the government program. We argue that savings behavior seems to confirm this lack of credibility during 1991.

It is still unclear whether the different approach followed by Hungary resulted from a deliberate design. However, we also note that after a clear difference in performance in 1990, the behavior of the two economies converges in 1991. By the first quarter of 1992, actually Poland shows signs of recovery, while output is still stagnating in Hungary.

In the paper we discuss several explanations for the output decline, focusing on both structural and aggregate factors. The obvious caveats on the limitations of official data apply to our analysis. However, it is doubtful that the ranking of the performance of the two countries is the result of measurement problems. Indeed, the underestimation of second economy, and private sector activities might be even larger for Hungary than for Poland. [4]

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[2] The lack of adjustment associated with the output decline in Poland during 1990 was detected early on by Frydman and Wellisz (1991).

[3] McKinnon (1991) has stressed the difficulties during the transition arising from the fact that reforming governments heavily rely on revenues from state-owned enterprises.

[4] Lado et al. (1991) estimate that the shadow economy in Hungary is as high as 30 percent of the official one.

Structural views have emphasized two main channels: (1) the closing down of activities with negative value added, or decline of activities non-competitive at the new set of relative prices; (2) downward adjustment of output due to reduction of "excessive" inventories. [5] Explanations emphasizing aggregate factors have isolated three main features. The first is the CMEA shock; the second, a the decline in household demand and the third, a contraction in credit. The relative importance of the different factors varied over time.

With regard to the structural factor we find weak evidence for both aspects mentioned above. However, especially in 1990, there is evidence of a higher degree of structural adjustment in the industrial sector in Hungary than in Poland.

With regard to aggregate factors, the CMEA shock was very strong in 1991 in both countries. Despite its popularity, the view based on the exogenous shift in household demand does not appear very convincing, especially when related to the fall in real wages and/or real monetary balances as the main driving forces. Household demand seems to have been affected by the dynamics of liberalization and reforms and the associated credibility of the programs--intertemporal substitution effects--rather than simple exogenous shifts due to real incomes or real wealth effects. The dynamics of savings behavior has differed markedly in the two countries, suggesting a role for the credibility of the programs, and attendant expectations of devaluation and reversal of trade reform. Savings rates follow a clear cyclical pattern in Poland, while they increase steadily over 1990-91 in Hungary. The appreciation of the real exchange rate, particularly sharp in Poland, may thus reflect such anticipatory behaviors of households and lack of credibility of the program, rather than signal a "misalignment" constraining domestic production. Savings behavior seems to confirm the impression of a greater credibility of the Hungarian than the Polish program. In this respect, Poland's experience, especially in 1991, seems to resemble patterns typical of stabilization programs in Latin America.

With respect to contraction in credit, we find such contraction to be a major factor explaining the Polish recession of 1990. [6] In contrast, there is little evidence of a credit squeeze in Hungary in either 1990 or 1991, so that one clear difference between the respective country experiences has been credit policy.

The plan of the paper is as follows. Section II reviews the initial conditions at the outset of the reform programs of 1990 and the design of the programs. Section III summarizes the output performance in 1990/1991. Section IV we discuss the explanations for this performance. Section V reviews possible sources of persistence in output decline. Section VI concludes the paper.

II. Initial conditions and the stabilization programs: Big Bang vs. Gradualism

At the end of the 1980s Hungary and Poland had reached broadly comparable stages of economic reform (Table 1). The structure and composition of output was fairly similar. A large share of prices was liberalized. Most importantly, economic decisions were largely decentralized to enterprises. In both economies, however, decentralization was not accompanied by the introduction of financial accountability

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[5] On the first mechanism, see Hare and Hughes (1992), while on the second see discussion in Berg and Sachs (1992), Winiecki (1991) and Calvo and Coricelli (1992).

[6] This view is elaborated in detail in Calvo and Coricelli (1992).

of enterprises. Bankruptcies, although legally contemplated were not a credible threat, and, de facto enterprises were still subject to soft budget constraints. Workers councils were in principle the main decisional body inside the firm in both countries. Both countries were characterized by a share of industry in GDP extremely high by market economies standards (Table 1). Consequently, the service sector was largely undersized (see Berg and Sachs (1992)). Within industry, the largest share of value added was in heavy industry (68% in Poland in 1989). The private sector contribution to non-agricultural GDP and employment was relatively small in both countries. Total contribution to GDP was much higher in Poland because of private ownership in agriculture. [7] The share of CMEA countries in total trade was similar in the two countries. However, Hungary displayed a much higher degree of openness. Thus, in terms of output its exposure to CMEA trade was almost twice as large as that of Poland. Hungary and Poland were also characterized by high external debt to GDP ratios (70 percent in Hungary and 52 percent in Poland). However, Poland repeatedly rescheduled its external debt and consequently served a very small proportion of it. In contrast, Hungary has serviced regularly its external obligations (interest payments at end 1989 was about 5 percent of GDP). Hungary carried out a fiscal reform and a banking sector reform 2-3 years before Poland. However, in the absence of a change in the underlying structure of property rights and microeconomic incentives, it is doubtful that these reforms had a major impact on behaviors and economic performance.

Despite these common traits, the two economies markedly differed with respect to growth performance, the extent of the imbalance in the goods markets and the related inflationary dynamics. Albeit increasing, inflation remained at about 20 percent p.a. in Hungary in 1989, while it reached hyperinflationary levels in Poland (Chart 1). This represented a major difference in initial conditions and likely justified a different approach to stabilization. With respect to output growth, both countries experienced a slowdown at the end of the 1980s. However, Poland went through a major recession at the beginning of the 1980s. The output growth after 1982 brought GDP at end 1989 only slightly above its 1980 level.

The design of the stabilization programs was broadly similar (see Boxes 1 and 2), with a significant fiscal adjustment, controls on net domestic assets of the banking system and accompanying wage policy (see Bruno (1992)). Exchange rate policy was slightly different in the two countries. Poland pegged the exchange rate to the dollar and maintained a fixed rate until May 1991. Hungary pegged the exchange rate to a basket of currency and announced that it would have modified the exchange rate to ensure maintenance of competitiveness. The programs were continued along similar lines in 1991.

Is there any major difference in the design of the programs which would indicate a significantly different strategy? There is a clear difference with respect to the size of the price shocks that each economy was subjected to in 1990. This resulted from the diverging scale of adjustments to administrative prices and exchange rate (Chart 3). There is also divergence with respect to credit and interest policy where, again, the contrast between very sharp or spiky adjustment in Poland and a more smoothed path in Hungary is striking (Chart 3). An additional factor compounding the initial liquidity squeeze in Poland was the taxation of accounting profits, arising from the drawdown of inventories valued at historical costs. This amounted to a taxation of enterprise inventories of a magnitude estimated at

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[7] However, even outside agriculture the private sector was larger in Poland. According to Grosfeld (1991) private sector accounted for 5 percent of industrial output in Poland, and for 3-4 percent in Hungary.

about 10 percent of GDP! [8]

Finally, despite a common pattern of trade opening, the scale of the initial liberalization in Poland in 1990 was far more radical than in Hungary, which pursued an accelerated but more gradual programme of trade liberalization over the two years.

In short, aside from differences in the initial conditions, there were non-trivial differences in programme design and implementation. We now discuss the implications for the respective output paths in more detail.

III. The output decline in 1990-1991

The information we present in this paper is largely based on official statistics, which, it has been argued, may overestimate significantly the output decline. [9] However, even the estimates of the "revisionists" on Poland point to the presence of a large output decline. While recognizing the possible importance of these measurement problems, the information available at this stage suggests that the recession is these countries is not a mere statistical artifact (see Schaffer (1992).

Both countries have experienced a sharp recession in 1990-91, so that at the end of 1991 Hungarian GDP was around 12 percentage points and Polish GDP 20 percentage points below the 1989 level (Table 2). Little sign of recovery can be detected in 1992 in Hungary, and the data on industrial output indicate a negative feed-through from the last quarter of 1991. Output in that quarter was well below the average for the year as a whole. There are however signs of improvement in Poland. Industrial output increased significantly in March, and even a stationary output for the rest of the year would imply a slight recovery for 1992 over 1991. In April production decline by 4.2 percent with respect to March, but it was 4 percent above its level in April of 1991. In addition, for the first time since January 1990, unemployment declined in March. Although extrapolation from the observation of one or two months is not warranted, there are signs that the recession has levelled off.

Thus, although the cumulative decline of output in the last two years has been much larger in the case of Poland, since 1991 the performance of the two economies began to converge, and, actually, to look slightly better in the case of Poland. According to preliminary estimates, consumption has strongly rebounded in Poland--with an increase of about 8 percent in 1991 over 1990. As a result, the cumulative decline of real consumption in the period 1990-91 was about 9 percent in Poland, as opposed to about 13 percent in Hungary. Fixed investments dropped in both countries around 8-10 percent per year. Inventory behavior has been markedly different in the two economies. Very little variation is observed in Hungary, while in Poland about half of the decline of GDP in 1990-91 can be ascribed to inventory decumulation. After a significant improvement in the foreign balance in 1990--much beyond original expectations--the demise of the CMEA brought a sizable deterioration of the foreign accounts in 1991 in

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[8] See Barbone (1992).

[9] Berg and Sachs (1992) estimate a 7 percent decline in GDP in 1990. The two main reasons concern the under-reporting of private sector activities, and index-type problems related to changes in relative prices (Osband (1991)). For Poland there have been attempts to provide alternative estimates of the output decline in 1990 (Berg and Sachs (1992)), while to our knowledge no attempt has been made for Hungary.

both countries (Table 3).

However, it is worth noting that in 1990, prior to the main CMEA shock, the output decline in Poland was much deeper than in Hungary, thus suggesting a possibly important role of macroeconomic policies. Except for the sharp decline in agricultural output in Hungary in 1990--resulting from a severe drought--the recession in both countries can be described as a recession of the industrial sector, in particular of the socialized industrial sector. Indeed, private sector production has increased in both countries (Table 3). Interestingly, while in Poland most of the growth of the private sector has come from retail trade and construction, in Hungary it has involved also the manufacturing sector (see Dervis and Condon (1992)).

(i) Industrial Output, Employment, Productivity, and labor costs

The scale of the decline in industrial output in the two countries is enormous, although significantly larger in Poland. By the end of 1991 industrial output was about 30 percent below its level at the beginning of 1989 in Hungary, and 45 percent below in Poland. Two main observations on Poland arise from Chart 4. First, the sudden collapse of activity in January 1990 is remarkable. Second, employment decline lags consistently behind output decline. In contrast, employment falls more than output in Hungary during 1989 and 1990, and only in 1991 it lags behind the output decline. The result is that, in Poland, at the end of 1991 labor productivity is 30 percent below its level at the beginning of 1989, while in Hungary it is only marginally below. This is a prima facie indication that adjustment has proceeded further in Hungary and that the decline of output could be partly due to a "shake-out" of the industrial sector. This is likely to have implications for future unemployment. While the unemployment rate has accelerated rapidly to over 9 percent in Hungary at end 1991 and to 12 percent in Poland, the dismal productivity story in the latter likely implies higher implicit need for labor shedding to eliminate the accumulated "employment overhang."

The behavior of wages was markedly different in the two countries. Real consumer wages increased in Hungary during 1990, while they declined by almost 30 percent in Poland (Chart 5). Striking is the fact that wages fell below the program ceilings in Poland for the first six months of 1990. This seems to suggest that firms faced a severe liquidity squeeze at the beginning of 1990 . This behavior is also consistent with the view of the behavior of worker-controlled firms, which likely attached a high weight in their utility function to maintaining employment (see Commander et al. 1991), and tried to avoid bankruptcy.

In 1991, real consumer wages slightly declined in Hungary, while they increased, although by less than one percent, in Poland. As producer prices increased less than consumer prices, product wages increased in both countries. At the end of 1991 product wages are in both countries about 20 percent above their level at the beginning of 1989 (Chart 5). In Hungary unit labor costs rose by over 14 percent over the full two years, with most of that of that increase bunched in the latter part of 1991. In contrast, in Poland unit labor costs at the end of 1991 are 80 percent above their level at the beginning of 1989.

Apparently, in both countries there is evidence of wage rigidity, with likely implications for persistence in output decline. Moreover, wage rigidity poses a major constraint on exchange rate policy. In the case of Poland wage behavior goes beyond the issue of wage rigidity. Indeed, there is evidence of games played by workers against government, with bargaining over tax and other payments being intrinsic to those games. One widespread result is that a large number of firms have fallen into massive arrears with the government. In Poland this has primarily taken the form of arrears on payments for the

excess wage tax. In Hungary, arrears on general tax payments are growing in 1992. Chart 6 indicates that for Poland larger shares of excess wage tax in gross profits are observed in sectors with larger shares of loss making enterprises. Wage behavior in 1991 has been increasingly associated with a phenomenon of "decapitalization" of firms (Pinto 1991). The reversal of behavior from the beginning of 1990, when wages were lagging behind the restrictive ceilings, is striking.

(ii) Variability across sectors

Table 4 reports the change in output and other basic variables for eight sectors measured over 1989.1 at 1990.4 and 1991.4 in Hungary. While it emphasizes the generalized nature of the output fall, it also allows us to isolate a number of important differences. First, although output had already fallen sharply in the first quarter of 1990 across all sectors, bar food, for all sectors most of the collapse is spread through 1991. Monthly observations indicate that a sharp increase in the standard deviation and coefficient of variation of changes by sector but little with regard to changes across sectors. However, it is striking to note that by end-1991 output of metallurgy and engineering were at nearly half the levels of 1989.1.

In 1990 employment reductions generally match if not exceed the change in output but, with the exception of mining, output in all sectors declines more rapidly than employment. The productivity falls are sharpest in the two sectors with the largest output declines. Wages do experience downward pressure in 1991 in every sector for both product and consumer wages. Even so, in both engineering and metallurgy, despite huge output losses and productivity declines of between 15-32%, real wages were still between 10-20% above 1989.1 levels. Only in food and mining do unit labour costs decline; elsewhere the increase averages over 20%. Thus while there have been large scale separations in the industrial sector, it seems likely that insider bargaining power remains significant. Wage settlements may not indicate end-game behaviour on the part of workers, but there has clearly been greater flexibility in terms of quantity adjustments--output and employment--than on the wage side.[10]

In summary, the sub-sectoral data for Hungary show significant variation in the rate of output decline, with exceptionally deep losses in metallurgy and engineering; sectors contributing over 35% of gross industrial output value in 1989. All sectors experience decline in 1991, however, and only the food sector is an outlier.

The behavior of industrial sectors in Poland shows some similarities with that of Hungary. However, the timing is reversed: in Poland the output decline was across-the-board in 1990, while it was much more differentiated across sectors in 1991. In 1990, 17 out of 20 sectors suffered declines of more than 20 percent (Table 5). [11] Table 5 shows that in both 1990 and 1991 the variability of wages across sectors is much smaller than that of other variables, such as output, employment and prices. It is apparent from Table 5 that the variability across sectors of the change in output is much larger in 1991

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[10] This is partially confirmed by the powerful growth in the corporate sector of assimilated income or payments not covered by the wage tax rule; non-taxable income more than doubled as a share of the gross wage bill between 1988 and 1991.

[11] At a more disaggregated level, Schaffer (1992) reports results of a survey by the Polish Central Statistical Office indicating that 527 products out of 591 surveyed displayed falls of real sales of more than 20 percent.

(the coefficient of variation is more than twice as large as in 1990). As in Hungary, the largest drop in output takes place in electro-machinery and in metallurgy. The role of sectoral shocks, likely associated directly and indirectly with the collapse of the CMEA trade, seems to have increased sharply. Moreover, the fact that the hardest hit sectors in 1991 are the same in Hungary and Poland suggests a common, "structural" explanation. As discussed below, electro-machinery is the sector which was more exposed to CMEA trade.

IV. Explanations for the Output Decline

Several explanations have been advanced for the output decline. We classify explanations in three groups, which emphasize the "structural," the "aggregate" or macroeconomic, and the CMEA-linked aspects of the output decline. Distinguishing with some precision aggregate from sectoral or structural shocks is hardly feasible with the data currently available. Borensztein and Ostry(1992) have applied to Poland the principal component technique, which could provide a crude indicator of the possible importance of structural change in the behavior of output by industrial branches over the period 1990-1991. [12] They find that in the case of Poland the first principal component explains 50 percent of output variability. We replicate their analysis for the case of Hungary, finding that the first principal component, which can be considered as an indicator of the importance of the aggregate or common factors across sectors, explains only 35 percent of output variability. Due to the limitations of the principal component technique, these results should be taken as merely suggestive. Nevertheless, they confirm the more direct observation on sectoral variability of output in 1990 in the two countries reported above, suggesting that structural change was likely a more important factor in Hungary.

(i) Structural Shocks

Changes in ownership, in the underlying rules governing transactions and non-trivial changes in the trade regime could be expected to deliver profound structural or reallocation shocks. This would be reinforced if ex ante output decisions were widely divorced from world prices. At first approximation, one might then expect in the new regime output changes to begin to be governed by relative price changes and the composition of output to reflect increasingly underlying viability at prices closer to international levels. Aside from compositional effects, the extent to which previous prices were artificial and divorced from comparative advantages could equally explain the fall in the aggregate level of output, as differential rates of adjustment by firms to the shock can be generated.

To test the association of output changes and viability at the new set of relative prices, we start with domestic resource cost measures relating the level of value added at world prices to domestic prices for 20 branches of Hungarian industry using 1988 prices. [13] For nearly a quarter of total manufacturing output, including iron and steel, negative value added was generated; any output loss would therefore improve welfare. For the remaining branches only 7% of Hungary's manufacturing output was produced at domestic resource costs below unity; though clearly this result was very sensitive to the exchange rate level that was used. For industry as a whole the DRC was 1.49.

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[12] Loosely speaking the higher the variance explained by the first principal component the smaller is the importance of structural change or sectoral shocks.

[13] The DRCs are taken from Hare and Hughes (1992) for Hungary, and from de la Calle (1991) for Poland.

Chart 7 gives a plot of these DRCs against the change in output for twenty branches [14]. There is clearly a weak correlation between ex ante viability and output changes, but in so far as the DRC captures comparative advantage, it is clearly a rather poor predictor of relative output change. Even so, the largest output losses have occurred in branches with the least comparative advantage, particularly metallurgy.

To explore this possible association a bit further, we hypothesize that low comparative advantage would be linked to the share of rouble in total trade and hence to the particularities of the former CMEA trade structure. Chart 7 plots the DRCs and the change in output against the rouble trade share in 1989. For the former, there is no obvious association; indeed the highest shares of rouble trade are found in branches with quite respectable DRCs. Indeed, for the latter, the picture is a bit different. The largest output losses are indeed concentrated in branches with high rouble trade exposure; a point we shall return to later.

The weaker than expected association of output changes with a simple measure of comparative advantage is likely to underestimate the scale of structural shocks. First, the data is fairly aggregated and masks a possible intra-branch dispersion in changes. Second, there has been incomplete trade liberalization with clear lagged effects associated with the timing of trade reforms, the pre-financing requirement for imports and foreign competition.

In a context of price and trade liberalization, one would also expect that output changes would directly reflect changes in relative prices and the latter would in turn be associated to comparative advantage. There have indeed been significant relative price changes since 1989 but Chart 7 indicates no evident association between relatives prices and the DRC measure. [15] A sufficient number of branches with DRCs at or around unity experience decline in relative prices.

In the case of Poland the association between ex ante viability, measured by DRCs and output and price changes is even weaker than that found for Hungary. Not only there is no significant correlation, but the association is not found even for extreme cases (Chart 8). Indeed, the sector with the highest DRCs (food processing) is the one which fared better on a cumulative basis over 1990-91.

Information on sectoral output and prices can be explored further, trying to disentangle demand and supply effects on sectoral behavior (see Aghevli et al. (1992)). In a simple demand and supply framework one would expect that a positive association between output and relative price changes would signal a shift in the demand curve, while a negative association would signal a shift in the supply curve. It is interesting to observe that a significant, but weak, positive relation can be found for Hungary, but that the coefficient does not markedly improve over more recent sub-periods. For Poland, we find a negative, though not significant, relation for the first quarter of 1990. [16] Interestingly, the correlation

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[14] The negative numbers are for branches with negative value added.

[15] Also, for price changes the first component only explains 50% of the variability for the period 1989.02 - 1991.12.

[16] For Hungary we carried out regressions for a sample of 30 branches over several subperiods. The coefficients on the relative price term ranges between 0.13 and 0.39 and are significant at the 5% level. For Poland, regressions involves 85 industrial sectors for the first quarter of 1990, and 20 sectors for

turns positive, and statistically significant in 1991. While any robust conclusion is difficult to support, this may indicate some beginnings of a response by Hungarian industry to the new set of relative prices and associated demand changes. No such effect seems discernible in Poland in 1990, while it clearly emerged in 1991.

Another important structural factor has been identified in the excessive holding of inventories characterizing the pre-reform period. Since Kornai's work (1980), it has been widely believed that in shortage economies uncertainty over supplies and limited financial instruments characteristically combined to ensure excessive inventory holding, particularly of inputs, by firms. Yet the official data for 1989 that we report in Table 6 indicate that neither country had excessive inventories. The inventory to sales ratio in both was lower than in the United States.

For 1990 and 1991, it is notable that in Hungary inventory changes are relatively slight. The 30 percent contraction in Poland in 1990 and the fact that inventory behavior contributed to around 5 percent of the decline in GDP in both years clearly requires explanation. If inventories were not at excessive levels in 1989, however, it seems more likely that this drawing down of stocks was driven by other factors, such as a liquidity squeeze on firms, rather than indicating further structural change in firm behavior.

To summarize, there is evidence of structural change being a significant component behind the output decline in Hungary but that this appears not to be the case in Poland.

(ii) Aggregate Shocks

Aggregate shocks appear to have dominated in Poland at least in 1990. There has been a generalized decline in industrial activity in 1991 and this has clearly been closely associated with the collapse of the CMEA. In this section we abstract from the latter effect, which is covered in more detail in section (iii) below. Two main types of shock can be isolated: aggregate demand shocks and credit market shocks, working through the enterprise sector.

(a) Aggregate Demand Factors

The two main channels identified as sources of a shift in aggregate demand are the decline in real wages and the decline in real monetary balances. Real wages and real monetary balances--measured by official prices--fell sharply in Poland during 1990 (by about 30 and 35 percent respectively) (Chart 9). No decline is observed in Hungary in 1990. These factors could thus be relevant for explaining the output decline in Poland in 1990. In 1991, real wages are practically constant in Poland and decline slightly in Hungary, while real monetary balances decline slightly in both countries. Besides conceptual issues--which we have discussed elsewhere [17]--concerning the endogeneity of both real wages and real monetary balances, it is worth noting that the simple demand view should be able to explain why the reduction of real wages and real monetary balances led to a contraction in output in 1990, while constant real wages--accompanied however by a sharp increase in unemployment--and a further decline in real monetary balances led to a significant increase in real consumption in 1991.

1991.

[17] See Calvo and Coricelli (1992).

The main piece of empirical evidence provided by the demand view for the case of Poland, has been the increase in finished goods inventories. [18] Berg and Blanchard (1992) show that there is a significant negative correlation between change in finished goods inventories and change in sales. [19]

One main objection to this view is that for the economy as a whole, including both industry and trade, finished goods inventories actually decline sharply at the beginning of 1990, when most of the output decline takes place (Chart 10). The ratio of finished goods inventories to sales increases above its level at end-1989 only in November 1990. While it is true that finished goods inventories increase much more rapidly in industry--although they still decline in January 1990--the relevant variable to assess aggregate household demand in relation to aggregate supply is given by total inventories of finished goods. [20] Moreover, the household demand interpretation of the output contraction is at odds with the fact that finished goods inventories increase significantly in 1991, when household demand increases sharply.

In Hungary we find that total real inventories in the economy and in industry declined by between 11-14% in 1990; but in both 1990 and 1991 real finished goods inventories did rise between 18-20 percent (Table 6). Trade sector inventories, largely composed of finished goods, fell by around 14 percent in 1990. Despite the fact that the process was generalized across sub-sectors, there is no particularly strong correlation between changes in inventories and changes in output.

Turning to Poland, we find that total inventories decline sharply in Poland at the beginning of 1990 (Chart 10). Despite a recovery during 1990, the ratio of inventories to sales remain throughout 1990 and 1991 much lower than that at end-1989. The contraction in total inventories represents a large demand shock for enterprises. As already mentioned, it seems more appropriate to view this contraction as a result of a sharp liquidity squeeze on firms, rather than a pure structural adjustment.

Thus, evidence of a demand-led contraction of output is at best weak. More in general, some skepticism on the demand-led recession arises from a microeconomic observation. Specifically, the demand view assumes that firms adjust their output in anticipation of a decline in demand. This interpretation would depict firms which are essentially profit maximizers and are extremely flexible and prone to adjustment. Indeed, in the case of Poland, where the output contraction took place mainly in one month, this view would imply an extraordinary capability to adjust to new demand conditions. Although mainly a conjecture, we strongly doubt that firms in reforming socialist countries possess such an extraordinary adjustment capability. First, maintaining output levels and employment is likely to be a major concern for worker-controlled firms, in which workers have a stake that goes beyond their wage, including the control on the firm and potentially on its assets. Second, uncertainties about demand conditions must have been enormous in an economy jumping in one month from a shortage-economy state

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[18] See Berg and Blanchard(1992) and Berg and Sachs (1992).

[19] It is worth noting, however, that this significant correlation is found in a regression incorporating credit as an explanatory variable for inventory changes. Interestingly, the credit variable is strongly significant while the sale variable is only weakly significant.

[20] In Poland, like in market economies, most of finished goods inventories are held in the trade sector. Movements of enterprise inventories are thus affected by changes in demand from the trade sector, which could in turn depends on a credit squeeze on trade companies.

to a market economy with free prices. [21] Therefore, it is more likely that demand factors became more relevant over time, when demand uncertainty was reduced.

More promising elements of a demand view which are likely to be relevant in explaining at least part of the initial decline in output in Poland in 1990, and the output decline in 1991 in both Hungary and Poland, can be traced to an intertemporal substitution effect and to a real exchange rate effect. For the case of Poland in 1990, an intertemporal substitution phenomenon likely played an important role. [22] In anticipation of the price jump households likely accumulated inventories of durable goods before 1990 and thus reduced their consumption during 1990. Evidence of this phenomenon is the sharp drop in household savings at the end of 1989, followed by a sizable increase at the beginning of 1990.

The second aspect relates to a substitution effect between domestic and foreign goods, associated with the appreciation of the exchange rate. In 1991 real exchange rates appreciate in both countries. The phenomenon is certainly more relevant for Poland, where since the beginning of 1991 the real exchange rate has been 80 percentage points above its level at the beginning of 1990, or 40 percent above the level of the beginning of 1989. In Hungary, in 1991 the real exchange rate appreciated by about 15 percent with respect to the beginning of 1990. In both countries during 1991 there was a surge in imports, particularly of consumer goods. Interestingly, both countries--although the increase was much larger for Hungary--experienced also a surge in investment goods imports. [23]

The appreciation of the real exchange may be singled out as a factor constraining domestic output. However, given the endogeneity of the real exchange rate, one cannot mechanically infer from the real exchange rate index a "misalignment" of the real rate. In the case of Poland, until May 1991, when the exchange rate was devalued for the first time since the beginning of the program, the real appreciation resulted from persistent domestic inflation, of the order of 3-4 percent a month on average. The persistence of inflation may indicate demand pressure, leading to an increase of purchases of both domestic and foreign goods. As noted above, this demand pressure seems to be related more to changes in savings rates than movement in real incomes or wealth. Savings rates increased at the beginning of 1990, following the sharp decline at the end of 1989. The anticipation of price liberalization and of the devaluation of the exchange rate likely triggered such behavior. Savings rates begin to decline in the second half of 1990, and decline sharply in 1991. Expectations of a devaluation, which actually took place in May 1991, and a decline of credibility of the program likely affected this behavior. In addition, anticipations of tightening of trade restrictions may have contributed to the increase in imports of

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[21] Finished goods inventories at the firm level were extremely low before 1990, both in Hungary and Poland (Table 6). Indeed, in Poland--excluding the food sector for which inventories declined in 1990--finished goods inventories were equivalent to 6 days of sales in 1989. The ratio increased to 10 days in 1990, an increase of about 70 percent. This large percentage increase could have arisen from a forecast error of about 10 percent on demand, a forecast error which seems more than plausible for an economy experiencing shortages a few weeks before the implementation of the reforms.

[22] See Frydman and Wellisz (1991), Pinto (1991).

[23] Therefore, the negative short term effects on domestic production of the appreciation of the exchange rate should be weighted against productivity improvements brought by imports of capital goods from developed countries.

durables. [24] Overall, a diminished credibility of the exchange rate anchor and of the initial bold liberalization of trade, may account for the observed behavior of consumption and imports. The fact that exports increase in parallel to imports tends to confirm the view that the real exchange appreciation is the result of expansionary pressures--leading to higher domestic inflation--rather than a cause for substitution out of domestic goods in favor of foreign goods. [25] Moreover, the exchange rate appreciation of Hungary could be related to the large inflows of foreign direct investment, and thus reflect an equilibrium phenomenon and not a "misalignment."

The above interpretation has important implications for policy decisions and near future prospects of the two economies. In Poland, especially, demand and thus imports are likely to decelerate after the decline in savings rates. Overall, the devaluation of the exchange rate may be counterproductive, by making expectations of actors self-fulfilling.

(b) Credit Market Factors

Another candidate for the output decline is the contraction of credit, either through quantity rationing or through interest rates effects. [26] Credit market factors seem to have played a crucial role in the initial output decline in 1990 in Poland, and may account for part of the different magnitude of the output decline in Hungary and Poland. The credit view helps explain several puzzling aspects of the Polish experience at the beginning of 1990, most notably the wage behavior. As already noted, credit policy follows a different path in Hungary. There is no visible contraction of credit during 1990; interest rates were gradually increased, without mirroring the jump in prices, either in 1990 or in 1991. Nevertheless, liquidity problems in the enterprise sector emerge during 1991. Enterprise deposits fell by nearly 20 percent in real terms in 1991, and interenterprise arrears significantly increase. However, the presence of the CMEA shock makes it hard to disentangle an independent role for credit factors, as real credit seems to follow rather than trigger output decline. Looking at the sub-sectoral changes, the picture is less clear. Given the generalized nature of the output decline across branches, there is far greater dispersion in credit than in output. Quite strikingly, real credit was higher at end 1991 for more than half the sub-sectors. For metallurgy and engineering where output declines were the most powerful, changes in real credit stocks appear to track, with a slight lag, the changes in output. One possible measure of credit restrictiveness would be to associate credit to average variable costs for 1989 and 1990, where variable costs comprise raw material and wage costs. It is notable that with the sole exception of metallurgy this ratio actually increased in 1990. Similarly, relating current credit flows to sales on a quarterly basis over 1989/91 points to considerable stability in that ratio both for total industry and the branches. In sum, in the case of Hungary there seems to be no clear evidence of a significant negative contribution of credit on output.

For the case of Poland Calvo and Coricelli (1992b) estimate that liquidity of enterprises--including credit implied by credit ceilings for the first quarter of 1990, enterprise deposits carried over from the end of 1989 and full capacity profits--fell by almost 30 percent in the first quarter of 1990.

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[24] For automobiles there is anecdotal evidence of such a phenomenon.

[25] The increase in imports is perhaps a natural outcome of trade opening and an attendant increase in variety in the consumption basket.

[26] The role of credit is discussed at length in Calvo and Coricelli (1992).

The credit contraction at the beginning of 1990 worked mainly through the sharp increase in interest rates which--abstracting from the price level jump of January--reached 10 percent a month in real terms in February. Enterprise surveys (Dabrowski et al. (1991) and Pinto (1991)) support this view. This suggests that the jump in interest rates provided a powerful coordinating mechanism for the output decline; higher interest rates were visible for all firms and signalled--in a context characterized by high uncertainty on costs and demand due to the changes in relative prices--a sharp increase in production costs. Combined with credibility of the program, and thus with a perception of risk of bankruptcy, the increase in interest rates likely induced firms to scale down their level of production. Sectoral data seem to support this view. As shown in Calvo and Coricelli (1992) the output decline in the first quarter of 1990 was larger for the sectors with the higher exposure to bank credit. Furthermore, sectoral changes in wages in the first quarter of 1990 are positively correlated with change in credit, suggesting the importance of the credit in explaining the puzzling wage moderation of the beginning of 1990. [27]

Relaxation of credit policy through the reduction of interest rates in the second half of 1990, while it might have contributed to inflation persistence, was nevertheless associated with a recovery in output (about 9 percent from April to December). Credit policy was tightened again at the end of 1990 and at the beginning of 1991. The assessment of the independent role of credit in 1991 is complicated by the presence of the CMEA shock. However, there is some evidence that credit markets continued to constraint the supply response in 1991. In this regard, one of the main issues is the absorption of a large proportion of credit by loss making enterprises. By the end of 1991 loss-making firms (firms with negative operating surplus) account for about 27 percent of total industrial sales, while they absorb almost 40 percent of bank credit. In addition, non-performing loans in the banking system, were estimated, conservatively, at 30 percent of total loans at end-1991. Thus, a large proportion of loans--those going to loss making firms--are likely to represent capitalization of overdue interest. As a result, within the overall credit ceilings, which include non-performing loans, new credit channelled to the industrial sector has substantially shrunk. Therefore, the difficulties in the financial sector are likely to have constrained the supply response. If not solved they are likely to contribute to the persistence of the recession in the industrial sector.

(iii) The CMEA Shock

Problems with the reliability of the trade data for both countries in 1991 make precision elusive; the analysis in this section is thus tentative. The weight of a largely exogenous trade shock in dampening foreign demand for Hungarian and Polish products is widely believed to lie behind the fall in output in 1991. One might have expected this to result in change in the composition of output rather than the across-the-board output losses. But insofar as adjustment costs are present and resources cannot be shifted in the short run to different uses, the CMEA shock would lead to an aggregate decline in output. Exports to non-CMEA countries increased significantly in both countries. Indeed, in Hungary there is evidence that there was a redirection of exports from CMEA to non-CMEA markets, and that this export growth was not confined to sub-sectors already largely exposed to non-CMEA trade. As we shall see, certain branches with high CMEA exposure were unable to redirect trade flows, but this was not a universal pattern. Consequently, in both settings increased exports to market economies softened the negative effect of the CMEA collapse.

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[27] The cross-section regression over 85 industrial branches yields a coefficient on the credit variable of 0.33, with a t-statistics of 1.9.

It appears that for Hungary total export volume declined by 10/11 percent over 1990 and 1991, with most of that decrease occurring in 1990. [28] Given that exports comprised around 38 percent of GDP in 1990, this contraction would only account for a direct impact on output of around 3 percent. Based on preliminary estimates of a volume contractions of 68% for exports in 1991 to former CMEA countries, the direct effect of the loss of CMEA markets would amount to 10 percent of GDP. [29]

For Poland, total exports declined by only 1.4 percent (Table 7). The effect is consequently fairly marginal. Isolating the effect of the decline in exports to the CMEA at around 40 percent in 1991 would nevertheless yield a direct impact of around 2 percent of GDP. Incorporating indirect effects through input-output channels would rise the effect to 4 percent. [30]

In summary, given the compensation from the increase in exports to non-CMEA countries, the fall in output accounted for by the fall in exports to the CMEA leaves a large residual in output decline which remains to be explained in both countries. However, the negative effect of the demise of the CMEA might have operated through the terms of trade.

Taking adverse changes in the terms of trade, the loss of Eastern markets and the associated loss of rents on exports, Rodrik (1992) has estimated that the combined shock accounted for over 3.5% of GDP in both 1990 and 1991 in Hungary, and 4 percent cumulative in Poland. This ignores any multiplier effects, but would nevertheless imply that roughly 60% of the fall in output over the two years could be traced to the terms of trade effect of the trade induced shock. [31]

Prima facie, even after taking into account terms of trade effects, there seems to be a large residual in the output decline to be explained for Poland, while the residual appears smaller for Hungary. However, we argue that even for Hungary the residual is fairly large.

One possible supply side effect widely believed to have had a negative effect on output has been the shift in energy pricing. This effect was severe in Poland, where firms were paying oil inputs imported from the Soviet Union well below world prices. For Hungary, a priori, the argument is less compelling as Soviet energy prices were generally at or above spot prices and the import subsidy on energy was not large, particularly when compared with Poland. [32] Nevertheless, even for Hungary

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[28] This is based on final customs data provided by the Ministry of International Economic Cooperation. Thus, final data would imply a much smaller decline in total exports than the one reported in Table 7, based on the first three quarters of 1991.

[29] Indeed, in 1990 the share of CMEA exports in GDP was about 15 percent.

[30] This calculation has been provided to us by Luca Barbone of the World Bank.

[31] Other estimates, similarly sensitive to valuation of transferable ruble surpluses and base year quantities and prices, indicate major incomes and commodity terms of trade deterioration vis-a-vis the Soviet Union. Oblath and Tarr (1991) estimate an income loss of around $1.5 billion in 1991 or 4.5% of GDP, with roughly 20% decline in the bilateral terms of trade.

[32] Major items such as gasoline and heating oil were very significantly in excess of economic costs by 1989.

weighing energy price changes with 1989 consumption weights indicates that the relative price of energy for industrial producers rose by over 50% in 1990 and by a further 13% in 1991. For households, relative energy prices rose by under 3% in 1990 with a further 50% increase loaded into 1991.[33] Changes to energy prices have obviously played a role in depressing profits across sectors in both years in Hungary. Highly energy intensive industries--such as ferrous metallurgy and chemicals--have been negatively affected, given their limited scope for economizing on energy inputs. A collapse in enterprise profitability is observed in Poland since the beginning of 1991 (Chart 11).

Sorting out and characterizing the effects of the trade shock on the industrial sector is complex, given price and quantity factors. Nevertheless, we can identify a clear loss of markets effect on exports. In Hungary the compositional changes--particularly the decline in capital goods exports--having obvious implications for the sectoral shock. Second, there is a comparable effect on the import side. Capital goods imports expand very significantly, but most of that is coming from market economies and can be considered part of the structural change affecting firm technology. Overall, the sharp rise in imports in 1991 is concentrated on consumer and capital goods from western suppliers. [34] The burst in imports is notable and likely explain in part the downward pressure on domestic sales; a point we emphasized above.

In Poland a similar pattern can be identified. The sharp fall in exports of electro-machinery--the sector with largest concentration of exports to the CMEA--is accompanied by a sizable increase in capital goods imports in 1991 (about 48 percent at end 1991), following--in contrast to Hungary--a fall in 1990 (by 11 percent). Like in Hungary, imports of consumer goods surge, increasing by more than 100 percent. [35] Thus, the penetration of imported goods in consumer markets has increased sharply.

When trying to trace these shifts down to industrial branches, several features stand out. As already mentioned, there is a clear positive association between exposure to rouble trade and output change, particularly in Hungary (Chart 8). The association is present also in Poland for the extreme case of the electro-machinery sector. The latter is the sector with the largest share of exports to the CMEA over total sales in 1990, and is the one suffering the largest output decline in 1991. For the other sectors the correlation is rather weak (Chart 12). However, Chart 12 also shows that the contribution of the CMEA trade to change in real sales is strongly correlated with the change in sales. [36] Thus, the sectors experiencing the larger negative effects of CMEA trade are those experiencing the larger fall in real sales in 1991. Nevertheless, Table 8 clearly indicates that the CMEA effect is much smaller than the decline in real sales. As Table 8 shows, a large proportion of this gap is accounted for by the total trade effect. Given that exports to non-CMEA countries increased remarkably, the large negative contribution of total trade is mainly due to the surge in imports. Table 8 suggests that the negative impact on production of import penetration is even more important than the loss of CMEA markets.

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[33] By 1991 most energy prices were at or above economic costs.

[34] Giving rise, at the upper bound, to a trade gap amounting to around 4.5% of GDP in 1991

[35] In 1990 consumer goods imports decline by about 3 percent according to official statistics. Partner countries data, however, indicate that these likely underestimate by more than 40 percent actual imports (Berg and Sachs (1992)).

[36] The contribution is defined as the difference between the change in real exports and real imports as a share of 1990 sales.

The case of Hungary is similar. Despite the CMEA collapse, foreign sales for industrial firms stayed fairly constant in real terms. It is real domestic sales that shift downwards the most. Thus, despite the correlation between output decline and exposure to CMEA displayed in Chart 8, the sectors suffering the larger decline in output experience the larger decline in domestic sales. The fact that foreign sales stay up can largely be attributed to large scale switching not just into convertible transactions but away from former CMEA markets. Table 4 drives home the point that foreign sales shares have been fairly stable and that switching has been particularly marked in branches with high ex ante exposure to rouble markets. [37] Plotting output changes and export changes by branch for 1991 consequently reveals no robust correlation. Thus, sectoral data confirm that the loss of foreign markets has not been the main constraining factor on production. [38] The coexistence of good export performance and an import surge should caution however over simple conclusions on the level of competitiveness of Hungarian products.

V. Persistence in Output Decline

It is now clear that industrial output and employment has fallen across-the-board in both countries; but with deeper troughs in some branches. Available evidence unequivocally points to widespread difficulty in the firm sector in both countries. Interenterprise, tax and other arrears (and deteriorating fiscal positions) are evidence of the phenomenon. In Poland, more than 30 percent of industrial output is produced by loss-making firms, and on an after tax basis about 75 percent of enterprises turned in negative profits. [39] While employment adjustments have been sizable, especially in Hungary, there is evidence that firms now face a major cost squeeze in both countries. This squeeze can be traced to a number of channels. First, we have already indicated the resilience of wages and the rise in unit labour costs. [40] Second, the significant rise in the interest rate through 1990 and 1991 and the limited options for internal financing. Third, the reduction in other subsidies. [41] Fourth, the rise in the relative price of energy.

Have firms been able to continue passing on cost increases to consumers? The question is germane given the institutionalized mark-up pricing rule that previously was maintained and the

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[37] The sample is for larger firms (>300 workers) where output losses have been higher than average.

[38] A caveat is in order here. There is clear evidence that particular branches--particularly capital goods producers--have been seriously adversely affected by loss of CMEA markets. But this type of fixed factors problem has been largely concentrated in branches of engineering; transport equipment, communications and precision tools are clear instances. In general, export switching across payment medium and trade zones has been very significant in 1990 and 1991; with compositional changes outweighing aggregate export changes

[39] There is increasing evidence that this is also widely true for Hungary in 1991-92.

[40] Hare and Hughes' (1992) estimates indicate that for Hungary the ratio of labour costs to world value added for total industry was already rather high at around 0.8 in 1988.

[41] Amounting to over 6% of GDP between 1989 and 1991 in Hungary and 8% in Poland.

continuing high degree of concentration.[42] Trade liberalization might have been expected to interfere with the decision rule with downward pressure being exerted on gross margins. For Hungary, unfortunately, we only have data for 1990. It indicates that gross margins (revenues minus variable costs over costs) for industry and most branches remain constant over 1989. For Poland, mark-ups remain high during most of 1990, although below their level at end-1989, and decline sharply in 1991.

Overall, the partial picture we have pieced together indicates significant rigidity on the cost side in both countries; in part the consequence of price shocks and fixed production coefficients; in part the result of insider bargaining power on the part of workers. These factors are likely to promote persistence in output and inflation. Rigidities on wages will also jeopardize the needed improvement in competitiveness in both countries.

The accumulation of inventories of finished goods is an additional source of persistence in output. If current levels of inventories are higher than desired, output recovery will have to wait for the reduction of finished goods inventories to their desired level. From the discussion above, there is some uncertainty on the assessment of the level of finished goods inventories due to the extremely low starting point before 1990.

Beyond these macroeconomic factors, a major uncertainty on the prospects for recovery output comes from the structural transformations, in primis the process of privatization, in the two economies. Especially in Poland the uncertainty on the reform of the enterprise sector has created a paralyzing situation with loss-making firms involved in a clear end-game with the government. The noise created by the interconnections among enterprises through interfirm debts, and between enterprises and banks, is a major bottleneck for an effective supply response of the economy. While this process is not as far advanced in Hungary as in Poland, it is clear that a significant section of the socialized firm sector is loss making and/or in strategic decline. The potential for end-game behavior in the face of low competitiveness, an absence of wage controls (since January 1992) and continuing uncertainty over ownership remains present.

VI. Concluding Remarks

The decline of output in 1990-91 has been enormous for both economies. However, the magnitude of the decline has been much larger in the case of Poland, despite a smaller impact of the demise of the CMEA. More importantly, the decline of output in Hungary seems to be associated to a larger extent than in Poland to structural change. For both countries the recession has been a recession of the state sector. The pace of privatization and private sector growth may be too slow in both economies. This may prove to be the main constraint on output growth in both countries. Nevertheless, there are also macroeconomic constraints on output expansion. These seem to be associated with two main factors: (i) credit market imperfections; (ii) increase in labor costs. The large share of non-performing loans in both countries, and the interconnections among enterprises through interenterprise credit pose major constraints on an efficient allocation of resources. Wage behavior, especially in Poland, indicates the presence of end-game behaviors and decapitalization of firms. Signs of wage rigidity seem present also in Hungary. A major question mark is associated with the dynamics of wages which may arise as a result of the recent lifting of controls on wages in state enterprises.

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[42] In 1988 barely 21% of total supply in product markets for manufactured goods could be classed as competitive, see Landesmann and Szekely (1991).

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Box 1

The Hungarian Programmes for 1990 and 1991

In both years the Hungarian Government had agreements with the IMF and with the World Bank. The agreements targetted significant fiscal adjustment -- 2 percentage points of GDP in 1990 --, reductions in real net domestic assets and money, an increase and subsequent maintenance of interest rates at or near positive real rates, the continued liberalization of consumer and producer prices, including energy prices, as well as nominal depreciation of the exchange rate, 15% in 1990. More structural components included measures for accelerating privatisation, for the reduction of subsidies to enterprises and for increased trade liberalization.

In both 1990 and 1991 there was general compliance with targets set under these agreements, particularly with respect to monetary indicators, subsidies and trade policy. Of note, is the consistently far stronger than projected performance of the convertible current account. By contrast, implicit or explicit targets for growth, inflation and the budget have proven grossly optimistic.

Projected and Actual Outcomes
(percent changes unless indicated)

	1990		1991	
	Projected	**Actual**	**Projected**	**Actual**
GDP	-1.9	-4.0	-3.0	-7.5
Consumer Prices	20.0	28.9	31.0	35.0
Budget Balance (% of GDP)	0.6	0.4	-1.4	-4.3
Current Account Convertible (% of GDP)	-1.3	0.4	-3.6	1.0*
Subsidies (% of GDP)	9.0	9.4	7.0	7.0
Real Domestic Assets	-9.4	-14.6	-13.5	-18.3
Real Broad Money	-3.2	0.2	-6.0	-5.0
Interest Rate	21.6	24.4	30.0	31.3
Wage Bill(real)	-6.0	-4.5	-6.0	-5.0
Import Liberalization*	32.0	37.0	72.0	72.0

(*=estimate; * = production weights)

Box 2

The Polish Programmes for 1990 and 1991

In both years the Polish Governemnt had agreements with the IMF and the World Bank. The agreements targetted a signgificant fiscal adjustment in 1990 (about 6 percent of GDP) and a small deficit for 1991. Real net domestic assets were expected to grow in both years, although a decline was expected for the first quarter of 1990. Interest rates were meant to be positive in real terms. The exchange rate was devalued by more than 30 percent and then fixed in relation to the U.S. dollar 1990, while it moved to a crawling peg (related to a basket of currencies) after May 1991. Wage increases were subject to ceilings, determined by low indexation coefficients. The wage bill was subject to control in 1990 and the wage per worker in 1991. The private sector was exempted from controls in 1991. Most prices were liberalized in 1990. At the beginning of 1990 almost all quantitative restrictions on trade were eliminated. All commercial imports were subject to an ad valorem tariff (for most-favored-nations 8.9 percent on average at the beginning, reduced to 4 percent in May 1990). In 1990 there was general compliance with targets. Actually, the improvement in the budget and in the current account of the balance of payments was much stronger than targetted. Targets were not complied with in 1991. In both years, targets for growth and inflation have proven grossly optimistic. On the structural front, the privatization program did not proceed as fast as programmed. Only, at the end of 1991 a mass-privatization program was approved.

Projected and Actual Outcomes
(percent changes unless otherwise indicated)

	1990		1991	
	Projected	**Actual**	**Projected**	**Actual**
GDP	-5.0	-11.9	3.0	-8.0
Consumer Prices1/	94.0	249.0	36.0	60.0
Budget Balance (% of GDP)	-0.1	2.5	-0.6	-4.3
Current Account (% of GDP)	-7.1	1.0	-2.8	-1.8
Real Net Domestic Assets	15.0	-60.0	22.0	14.0
Real Broad Money	-4.0	-37.5	3.0	-7.0
Real Wages	-31.0	-30.0	4.0	3.0

1/ December to December change

Table 1

Initial Conditions in 1989

Some Basic Indicators

	Hungary	Poland
GDP Shares:		
Manufacturing and Construction	41.9%	50.7%
Agriculture	16.2%	12.2%
Services	41.9%	37.1%
of which;		
Private Sector	c.15%	28.4%
Employment:		
Manufacturing and Construction	37.5%	35.3%
Agriculture	17.3%	28.5%
Services	45.2%	36.2%
of which;		
Private Sector	7.8%	47.2%
Trade Direction:		
Shares in Exports;		
Convertible Currency	62.2%	67.0%
Rouble	37.8%	33.0%
of which, USSR	59.9%	58.6%
Shares in Imports;		
Convertible Currency	61.6%	69.0%
Rouble	38.4%	31.0%
of which, USSR	56.5%	55.9%
Openness ((Exports+Imports)/GDP)	63.3%	34.0%
Prices Controls;		
Share of Free Consumer Prices	83.0%	66.0%

Table 2

Hungary and Poland: Change in GDP and its Components, 1990/91

	1990		1991 E	
	Hungary	Poland	Hungary	Poland
GDP	-4.0	-11.9	-7.5	-8.0
Consumption	-5.8	-14.7	-7.1	5.2
Private	-6.7	-16.6	-8.7	5.8
Public	-1.0	0.2	1.0	0.8.
Gross Fixed Investment	-8.8	-10.6	-8.3	-8.0
Inventories 1/	-0.4	-5.0	0.3	-5.0
Foreign Balance 1/	2.5	5.0	-1.7	-5.0

1/ Contribution to GDP growth

E = estimate

Table 3

Hungary and Poland: Private Sector

(i) Enterprises by Form of Ownership - Hungary

	December 1988	December 1989	June 1990	December 1990	June 1991
State Enterprises	2,377	2,399	2,409	2,364	2,362
Limited Liability	451	4,485	12,159	18,318	30,949
Joint Stock	116	307	518	646	868
Cooperative	6,680	7,076	7,133	7,132	7,223
Other	1,187	969	1,083	1,010	1,000
Total	10,811	15,236	23,257	29,470	42,402

Sources: Statistical Pocketbook of Hungary and Hungarian authorities

Poland (Number of Units - End of Period)

		1989	1990	1991	90/89(%)	91/90(%)
I.	State Enterprises	7,337	8,453	8,228	15.2	-2.7
II.	Commercial Law Enterprises	16,906	36,267	53,771	114.5	48.3
	1. Treasury Owned	208	248	376	19.2	51.6
	2. Joint Ventures	429	1,645	4,796	283.4	191.6
	3. Private Sector (incorporated)	11,693	29,650	45.077	153.6	52.0
	4. Other Enterprises[a]	4,576	4,724	3,522	3.2	-25.4
III.	Small Foreign Enterprise (Polonia)	841	862	787	2.5	-8.7
IV.	Cooperatives	15,024	16,650	17,374	10.8	4.3
V.	Establishments of which:					
	Social Organizations	n.a.	1,722	1,294	n.a.	-24.9
	Foundations	85	175	158	105.9	-9.7
	Religious	n.a.	59	198	n.a.	235.6
VI.	Individual Business (unincorporated)	813,500	1,135,500	1,420,000	39.6	25.1

Source: Central Statistical Office

[a] includes municipal enterprises and JSC's owned by State Enterprises

(ii) Poland: Shares in GDP and Employment

	1989	1990	1991[1]
Private Sector Share in:[2]			
Gross Domestic Product[3]	28.4	34.7	37-39
(former private sector)	[18.1]	[24.2]	n.a.
GDP growth rate	n.a.	7.1	0-3
(former private sector)	n.a.	[17.5]	[5-7]
Employment: incl. private agriculture	47.2	49.9	53-55
excl. private agriculture	31.1	33.6	38-40
External Trade: Total Trade	n.a.	8.6	32.9
Exports	n.a.	4.9	19.8
Imports	n.a.	14.4	46.1
Investment	35.3	41.3	41-43
Production: Industry	16.2	17.4	24.2
(former private sector)	n.a.	[11.6]	[18.4]
Construction	33.4	30.6	55.2
(former private sector)	[30.0]	[30.6]	[50.2]
Trade	59.5	63.7	75.0
Transport	6.8	9.9	12.0

[1] Projected; [2] Numbers in brackets refer to the definition of "former private sector", excluding cooperative and establishments; [3] Based on constant prices of 1984. Source: Central Statistical Office.

Table 4

HUNGARY: sectoral indices on a quarterly basis 1989.I - 1990.IV

	Mining	Electric	Metal	Engineer	Building	Chemical	Light	Food	Total
Output	89.9	93.3	74.3	98.0	98.3	91.4	90.7	131.0	97.1
Total sales	87.8	91.4	75.5	105.2	99.4	93.0	95.3	120.1	97.5
Domestic sales	n.a	n.a	69.4	103.2	n.a	88.8	86.5	113.8	93.9
Foreign sales	n.a	n.a	91.3	107.9	n.a	105.8	128.4	145.7	108.9
Productivity	121.9	91.0	98.7	114.8	106.4	96.9	106.5	134.4	111.8
Employment	73.8	102.5	75.3	85.3	92.3	94.4	85.1	97.5	86.9
Product wages	117.3	138.8	129.0	134.7	128.0	126.6	121.1	144.6	128.7
Consumer wages	126.3	146.1	128.2	117.4	126.2	134.7	112.3	137.9	126.1
Producer prices	158.2	151.4	143.3	125.8	142.0	153.9	133.8	137.6	141.2
Relative prices	111.4	106.9	101.6	89.2	100.6	108.8	94.9	97.6	100.0
Credit stock	83.6	n.a	84.5	87.0	130.1	89.9	101.9	124.4	96.5

HUNGARY: sectoral indices on a quarterly basis 1989.I - 1991.IV

	Mining	Electric	Metal	Engineer	Building	Chemical	Light	Food	Total
Output	69.8	83.0	40.1	58.0	59.5	66.1	61.3	110.8	70.0
Total sales	65.9	81.9	40.5	60.2	61.0	70.5	62.2	105.4	70.8
Domestic sales	n.a	n.a	32.8	57.8	n.a	67.5	54.3	96.5	67.5
Foreign sales	n.a	n.a	60.4	63.4	n.a	79.8	91.8	141.6	81.1
Productivity	110.1	88.4	67.7	85.8	80.1	77.9	86.3	124.9	96.1
Employment	63.4	94.0	59.1	67.8	74.0	85.0	71.1	88.8	72.9
Product wages	97.6	144.9	119.7	123.0	123.4	119.8	115.6	148.1	126.0
Consumer wages	102.7	132.0	110.2	109.1	120.2	124.5	102.0	124.6	115.1
Producer prices	201.5	174.7	176.6	170.1	187.0	199.3	169.3	161.4	175.2
Relative prices	115.0	99.7	100.8	97.1	106.7	113.8	96.6	92.1	100.0
Credit stock	119.9	n.a	65.7	62.6	141.0	102.3	93.7	139.6	99.1

Table 5

Poland

Poland: sectoral data 1990-91, percentage changes over previous year

	1990				1991			
	output	employment	wages	prices	output	employment	wages	prices
Coal	-31.8%	-11.4%	341.3%	898.6%	-0.1%	-8.9%	77.0%	111.1%
Fuel	-20.1%	-0.4%	427.9%	899.5%	-16.3%	-1.9%	61.9%	67.2%
Energy	-9.7%	1.7%	378.1%	978.0%	-6.0%	0.8%	74.2%	88.8%
Iron/steel	-17.1%	-5.6%	419.6%	783.3%	-24.2%	-6.6%	59.8%	19.2%
Non-ferrous materials	-23.7%	-2.8%	407.6%	810.5%	-21.2%	-10.3%	59.7%	22.7%
Metal	-25.6%	-11.4%	370.0%	595.2%	-16.4%	-3.1%	66.2%	33.5%
Machinery	-19.6%	-10.3%	376.7%	543.5%	-22.0%	-9.6%	69.8%	36.3%
Precision instruments	-16.1%	-8.6%	357.1%	425.8%	-30.6%	-17.8%	76.2%	28.0%
Transportation means	-25.2%	-8.1%	377.9%	614.3%	-39.5%	-12.0%	60.6%	53.8%
Electronics	-20.2%	-7.7%	356.0%	504.0%	-21.9%	-17.2%	74.3%	27.0%
Chemicals	-24.6%	-9.0%	374.7%	676.0%	-16.2%	-6.3%	71.1%	42.1%
Construction materials	-20.0%	-5.4%	370.8%	655.7%	-8.6%	-1.5%	74.3%	44.1%
Glass products	-27.3%	-6.5%	366.2%	597.6%	-5.2%	-6.4%	72.1%	44.0%
Pottery/china	-21.6%	-2.9%	365.0%	510.1%	-14.6%	-8.3%	70.3%	51.1%
Wood	-25.2%	-14.5%	359.6%	511.0%	-5.6%	7.9%	69.8%	53.8%
Paper	-23.6%	-8.5%	371.1%	666.9%	-2.7%	-4.7%	72.7%	20.8%
Textiles	-39.6%	-11.2%	329.8%	408.3%	-19.8%	-20.0%	74.6%	30.5%
Wearing apparel	-24.0%	-14.5%	331.9%	341.4%	-14.3%	-3.6%	74.3%	45.9%
Leather	-30.6%	-11.0%	319.8%	397.7%	-20.9%	-11.7%	74.6%	38.8%
Food	-23.7%	-2.5%	359.2%	528.0%	-1.3%	5.1%	72.5%	52.6%
Average	-23.5%	-7.5%	368.0%	617.3%	-15.4%	-6.8%	70.3%	45.6%
Standard deviation	6.1%	4.4%	26.8%	175.5%	10.0%	7.0%	5.5%	22.2%
Coefficient of variation	-26.0%	-57.9%	7.3%	28.4%	-64.9%	-102.9%	7.8%	48.7%

Source: Central Statistical Office, "Statistical Bulletin" (Warsaw, 1991 and 1992).

Table 6: Inventories

Poland

	1989	1990	1991[1]
Total inventories in months of sales	2.9	2.1	2.0
Share of Finished Goods Inventory in Total Sales[2]			
Total	3.7%	3.4%	3.9
Excluding food sector	1.8%	2.7%	n.a.
Finished goods inventory in days of sales[2]			
Total	13.0	12.0	14.0
Excluding food sector	6.0	10.0	n.a.

Shares of total inventory[2]

	1989		1990		1991	
	Finished	Other	Finished	Other	Finished	Other
Total	14%	86%	13%	82%	16%	84%
Food sector	41%	59%	36%	74%	n.a.	n.a.

[1] November
[2] In Industry

Hungary

	1989	1990	1991
Total inventories in months of sales	2.4	2.4	3.5
Share of Finished Goods Inventory in Total Sales			
Total	4.8%	4.9%	7.7%
Excluding food sector	4.4%	4.2%	7.0%
Finished goods inventory in days of sales			
Total	17.0	18.0	28.0
Excluding food sector	16.0	15.0	25.0

Shares of total inventory

	1989		1990		1991	
	Finished	Other	Finished	Other	Finished	Other
Total	24%	76%	25.5%	74.5%	27%	73%
Food sector	30%	70%	34%	66%	34%	66%

Table 7: Trade Indicators 1990 and 1991 (percentage changes)

Hungary

	1990		1991[1]	
	Volume	Unit Value	Volume	Unit Value
Non-Rouble				
Imports	2.8	8.7		
Exports	9.5	6.8		
Rouble				
Imports	-17.8	13.6		
Exports	-26.1	10.1		
Total Trade				
Imports	-5.0	11.1	7.1	24.7
Exports	-3.9	8.9	-11.6	13.1
Terms of Trade				
Non-rouble		-1.7		
Rouble		3.3		
Total		0.3		-9.3

[1] First three quarters of 1991

Source: CSO, M

Poland

	Volume	Volume
Non-Rouble		
EEC		
Imports	2.9	59.4
Exports		20.9
Others		
Imports		60.0
Exports	40.5	-7.5
Rouble		
Imports	-34.1	33.6
Exports	-13.3	-41.8
Total Trade		
Imports	-17.9	39.0
Exports	13.7	-1.4
Terms of Trade		
Total	-17.2	-4.8

Table 8

Poland: Sectoral data on external trade 1/

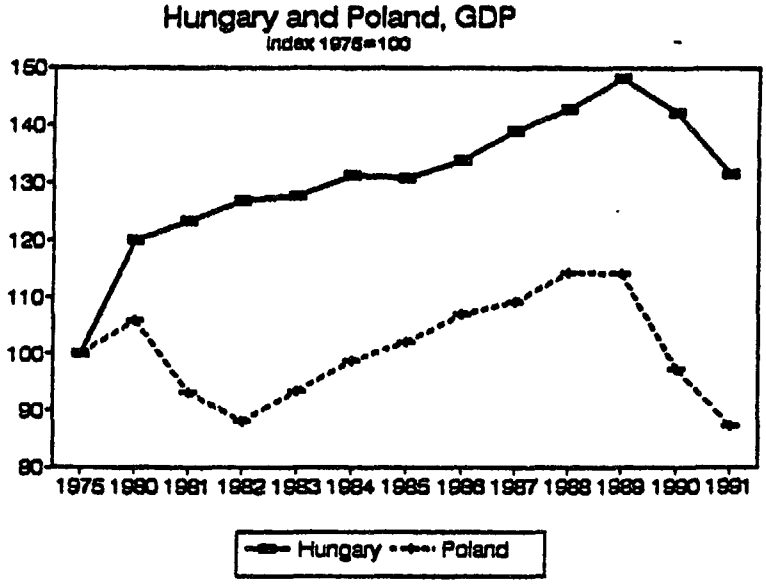
	CMEA-Export Sales Ratio 1990	CMEA Trade effect 1991	Total Trade effect 1991	Change in real sales 1991
Electro-machinery	18.0%	-6.9%	-18.9%	-26.1%
Fuel and energy	1.7%	4.2%	-3.1%	-8.4%
Metallurgy	2.4%	1.5%	11.3%	-22.4%
Chemical	6.0%	-3.3%	-13.6%	-15.2%
Mineral	0.6%	0.3%	-7.4%	-8.0%
Wood and paper	0.6%	0.2%	5.5%	-4.6%
Light	4.4%	-1.1%	-7.5%	-18.6%
Food	0.7%	0.6%	-9.5%	-0.5%

Source: Polish Monthly Bulletin on foreign trade

1/ data for 1991 cover the period January-July

Trade effect= contribution of change in real exports and imports to change in sales

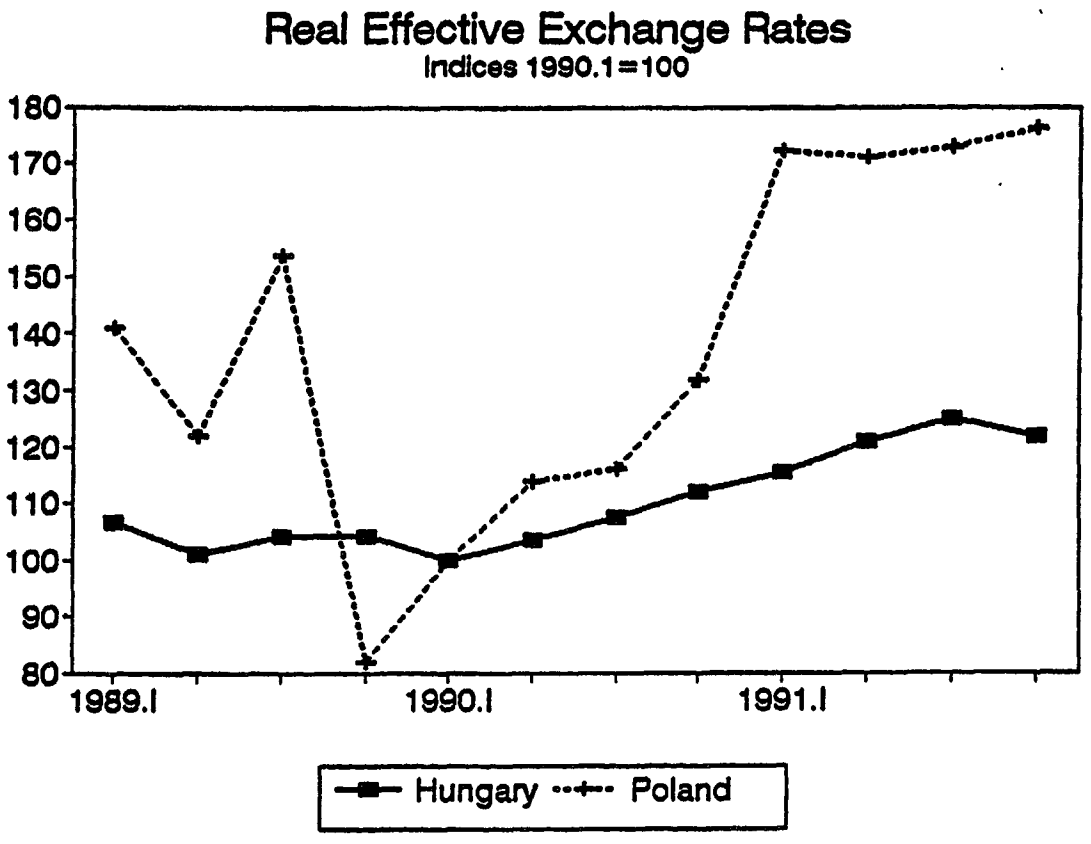
Chart 1


Hungary and Poland, GDP
Index 1976=100
150
140
130
120
110
100
90
80
1975 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991
Hungary
Poland


Hungary: Inflation
percentage change over previous year
35
30
25
20
15
10
5
0
1975 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991


Poland: Inflation
percentage change over previous year
600
500
400
300
200
100
0
1975 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

Chart 2


Real Effective Exchange Rates
Indices 1990.1=100
180
170
160
150
140
130
120
110
100
90
80
1989.I
1990.I
1991.I
Hungary
Poland

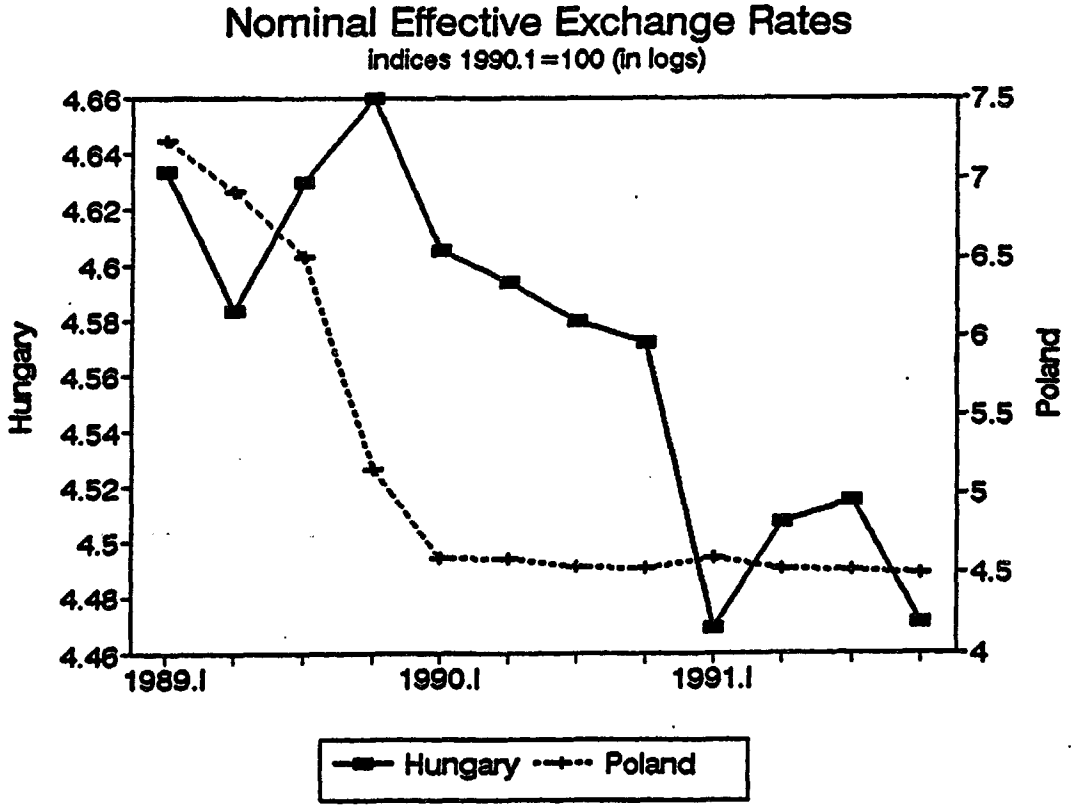
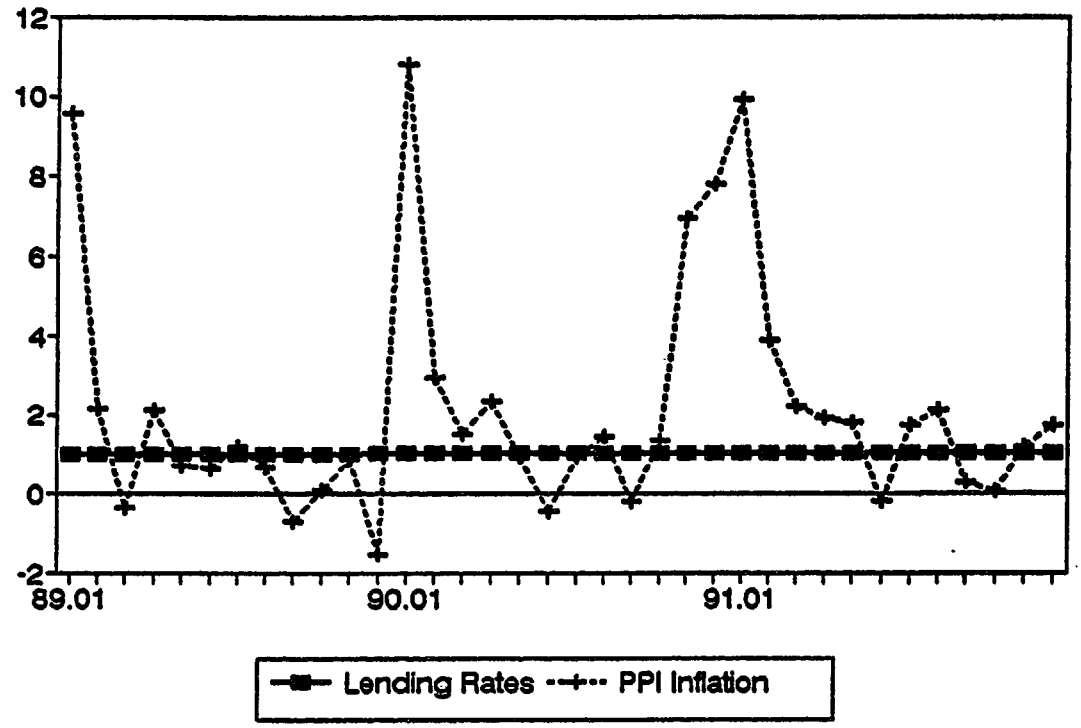

Nominal Effective Exchange Rates
indices 1990.1=100 (in logs)
Hungary
4.66
4.64
4.62
4.6
4.58
4.56
4.54
4.52
4.5
4.48
4.46
Poland
7.5
7
6.5
6
5.5
5
4.5
4
1989.I
1990.I
1991.I
Hungary
Poland

Chart 3

Hungary: Interest Rates and Inflation

monthly rates



Poland: Interest Rates and Inflation

monthly rates

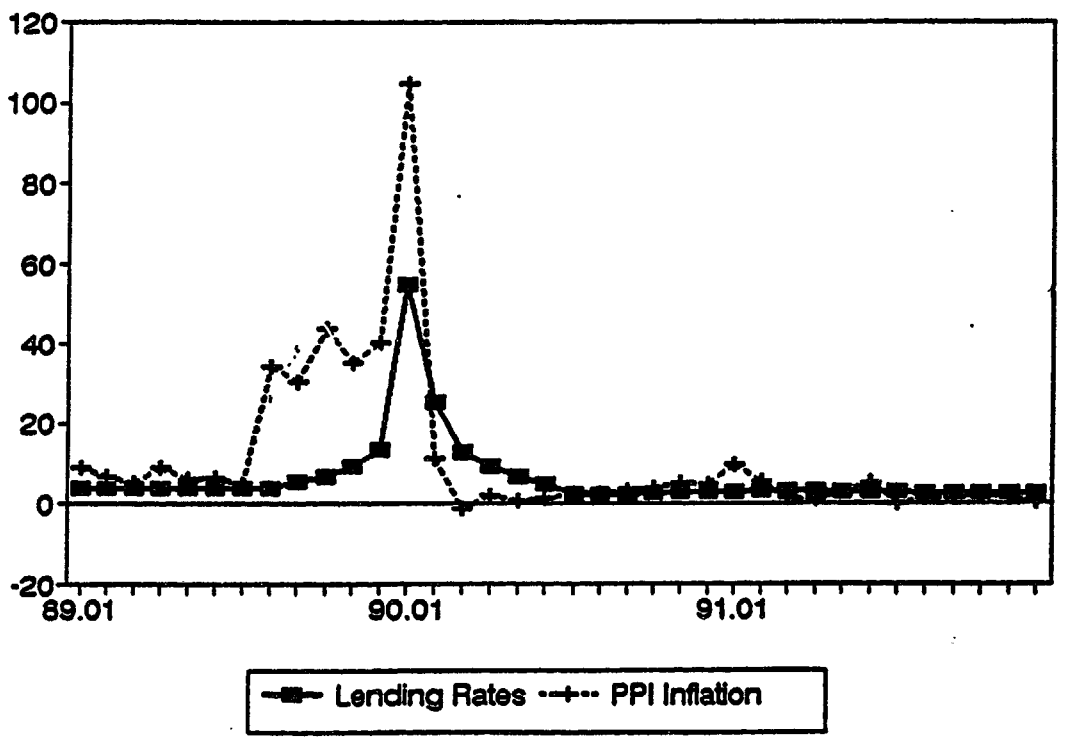
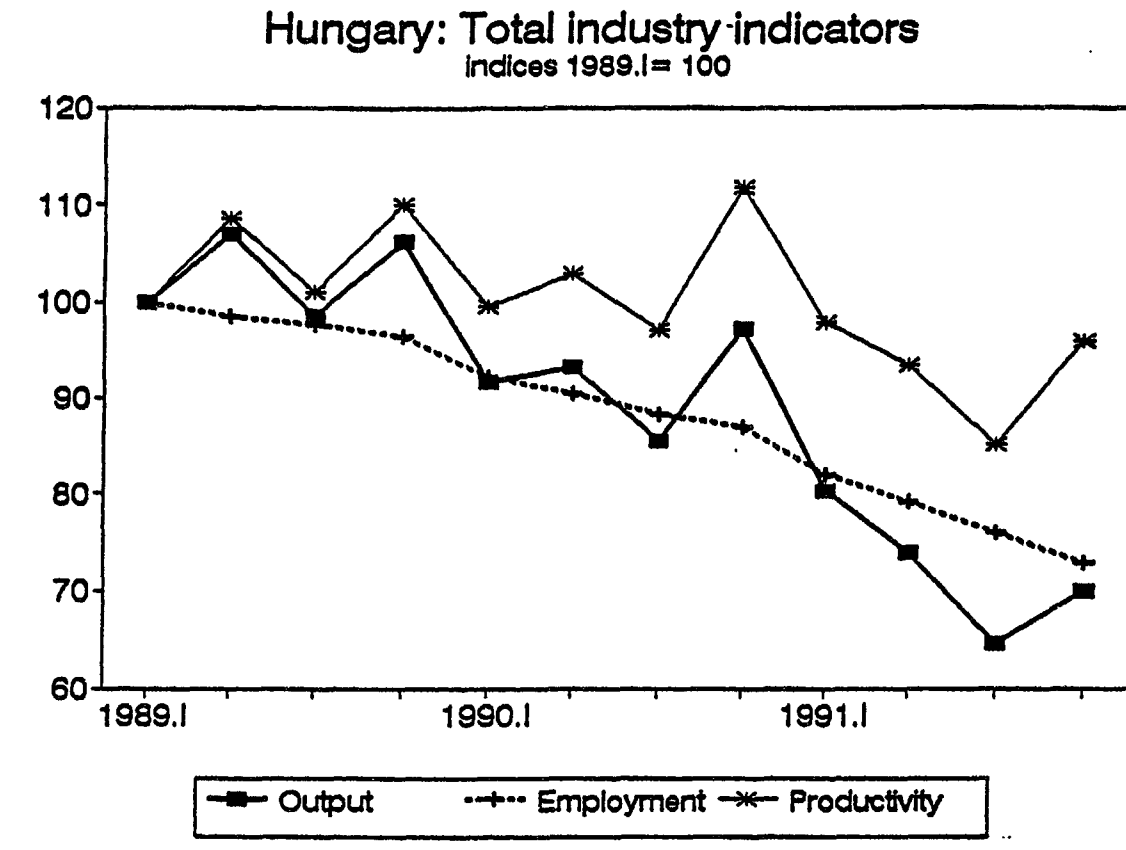


Chart 4


Hungary: Total industry indicators
Indices 1989.I= 100
120
110
100
90
80
70
60
1989.I
1990.I
1991.I
Output
Employment
Productivity

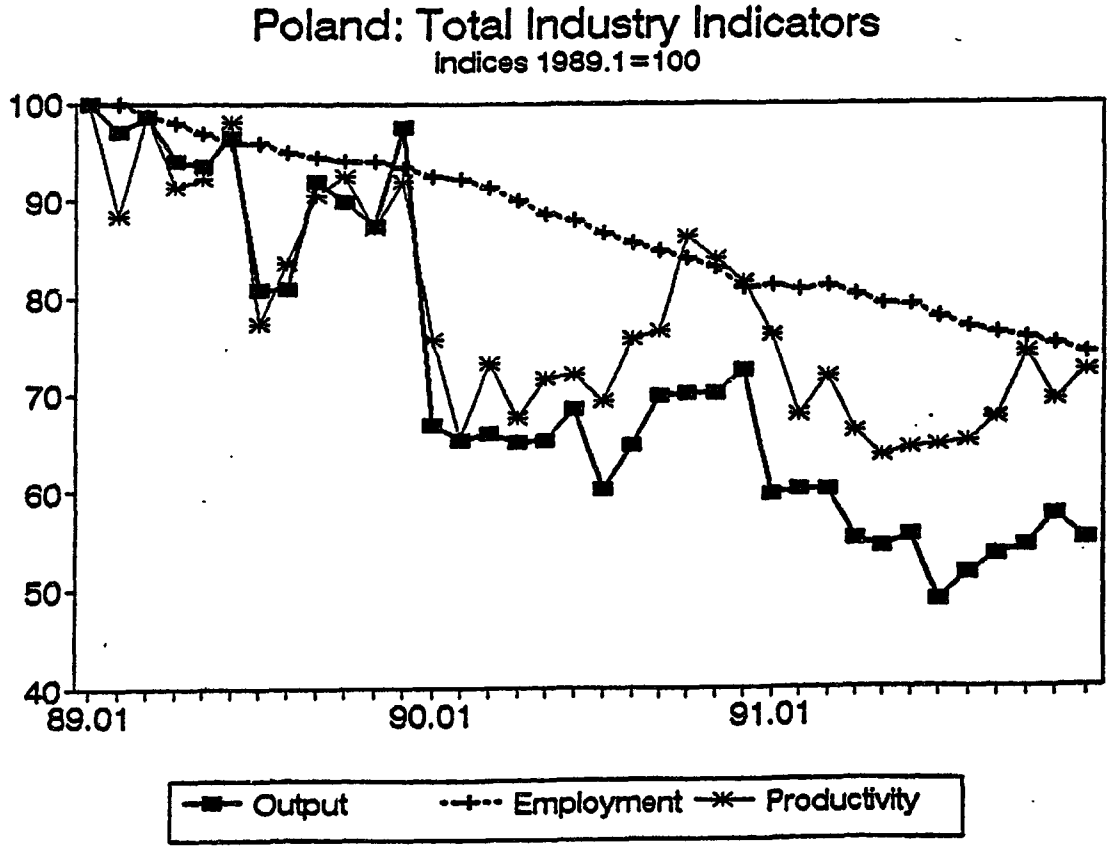
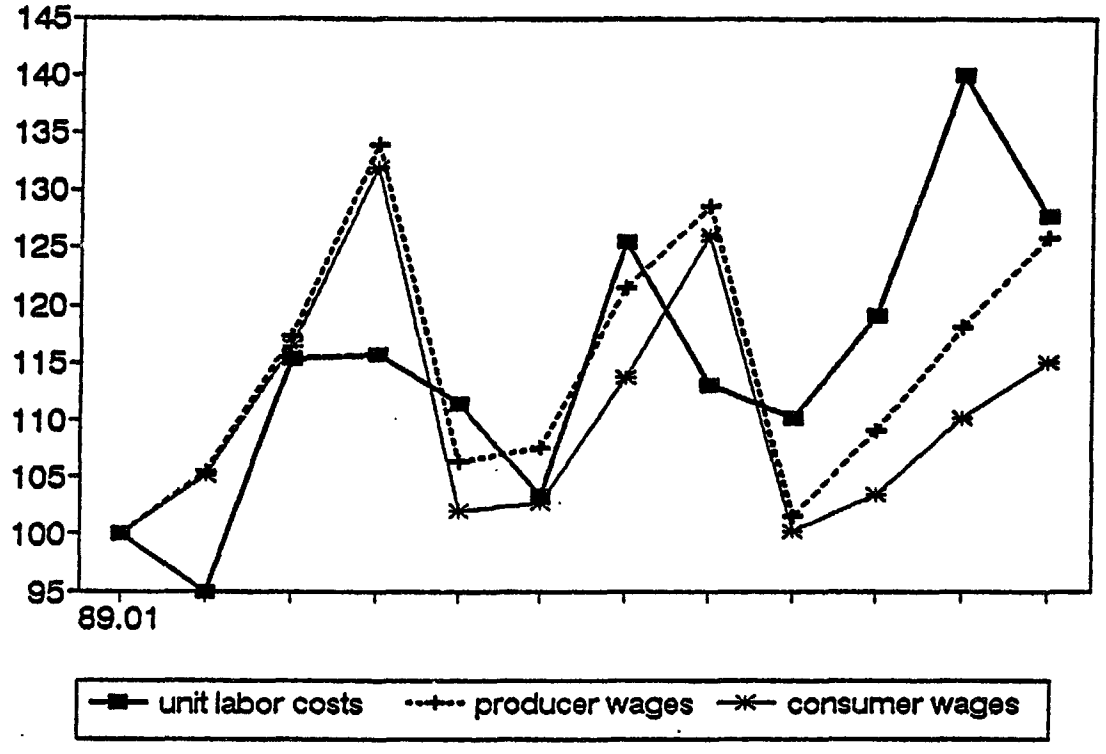

Poland: Total Industry Indicators
Indices 1989.1=100
100
90
80
70
60
50
40
89.01
90.01
91.01
Output
Employment
Productivity

Chart 5

Hungary: Wages and Unit Labor Costs

Indices 1989.1=100



Poland: Wages and Unit Labor Costs

Indices 1989.1=100

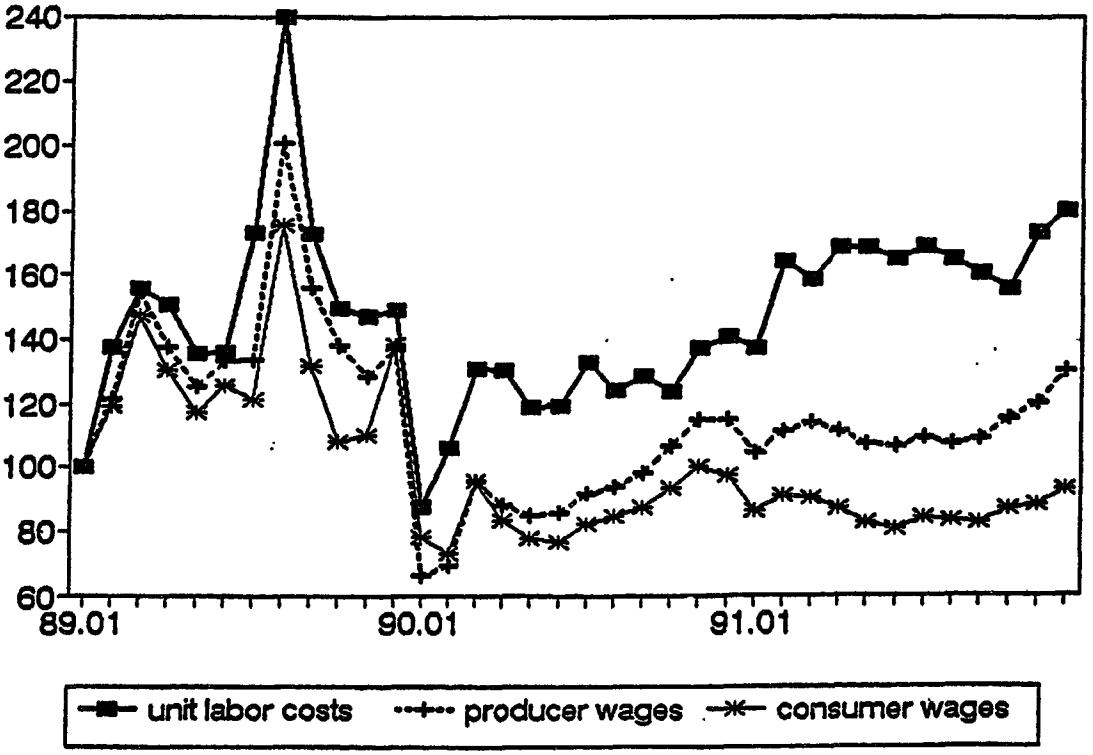


Chart 6

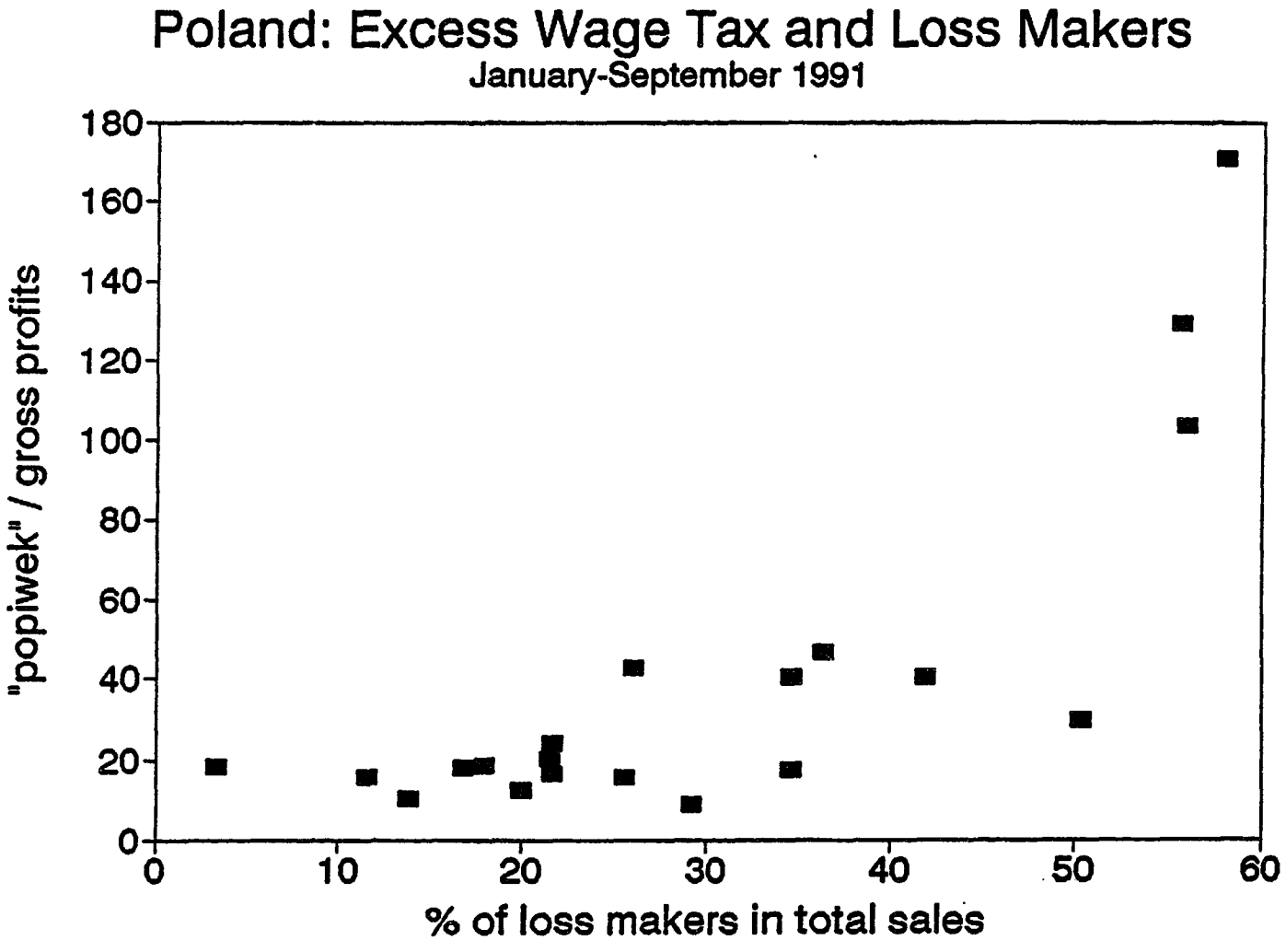
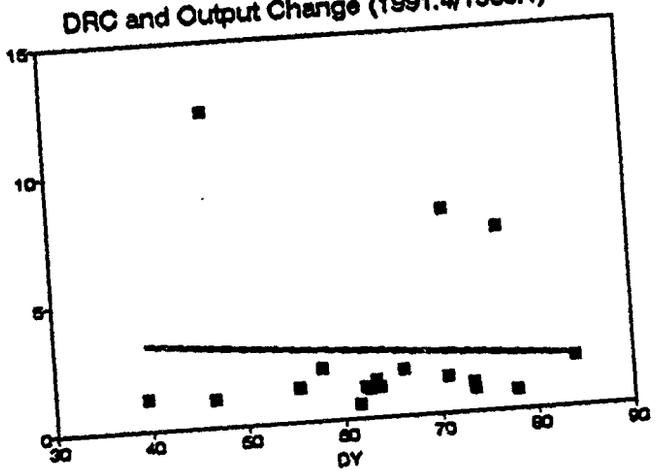
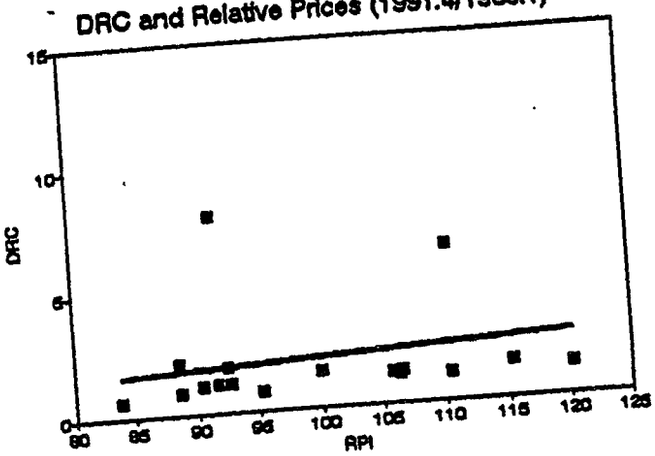
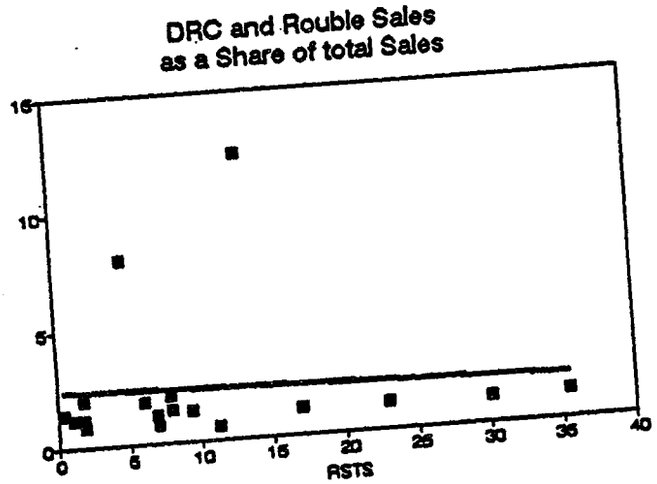

Poland: Excess Wage Tax and Loss Makers
January-September 1991
"popiwek" / gross profits
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
% of loss makers in total sales

Chart 7: Hungary







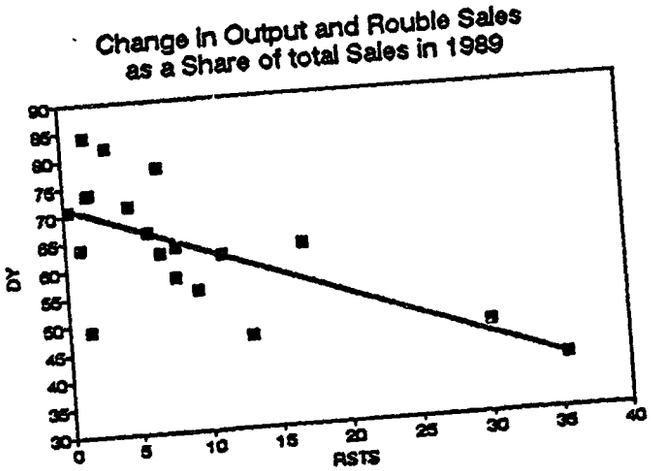
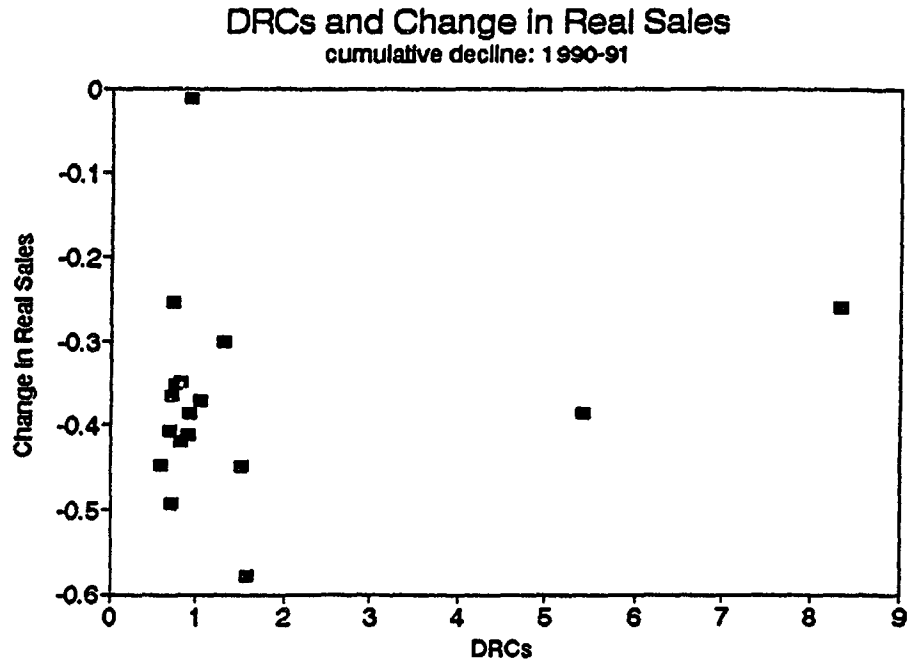


Chart 8: Poland



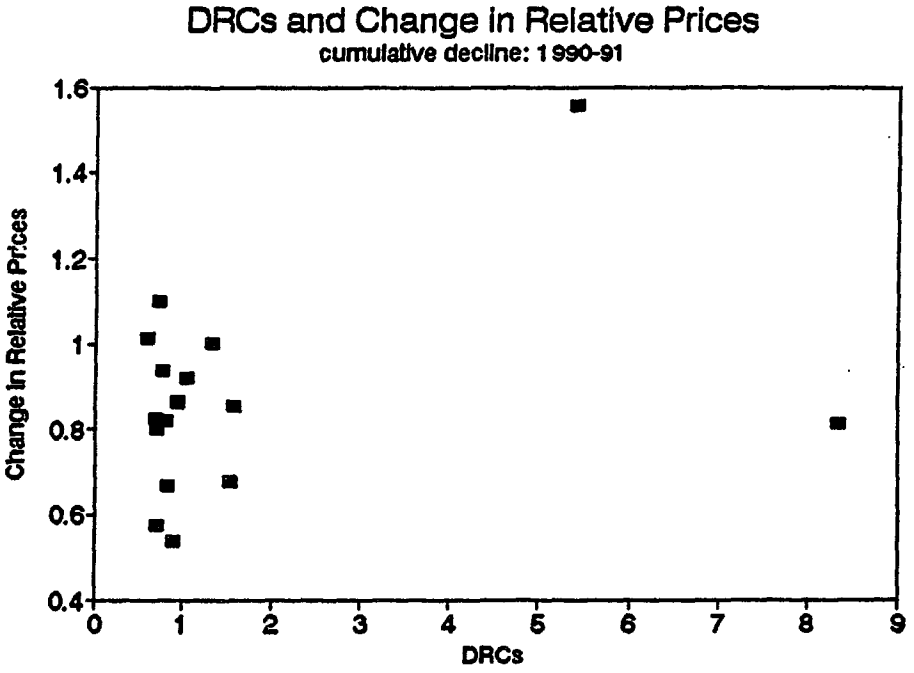
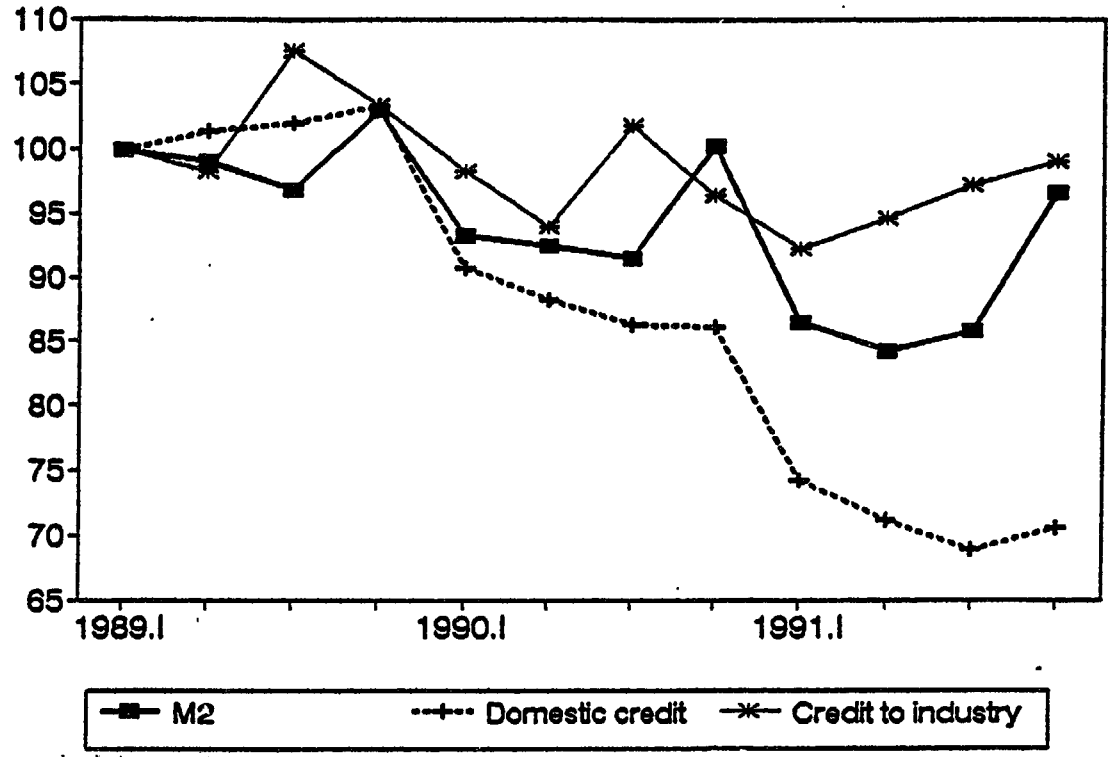


Chart 9

Hungary: Real Money / Credit Aggregates

Indices 1989.I = 100



Poland: Real Money / Credit Aggregates

Indices 1989.1=100

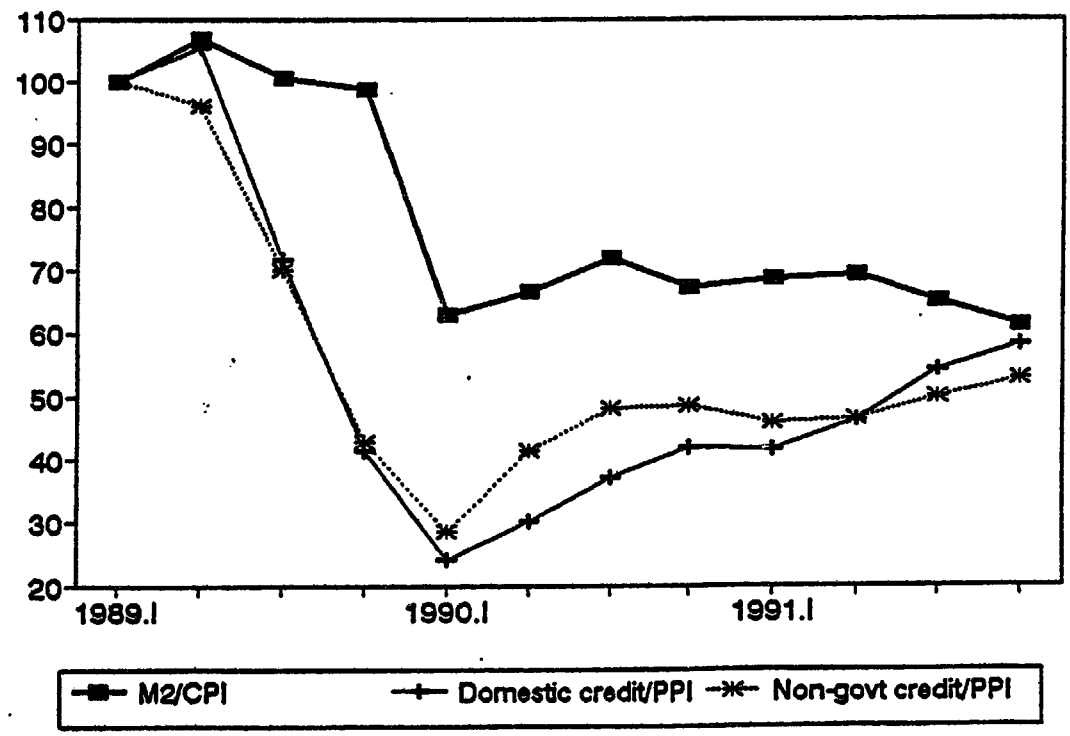


Chart 10


Poland: Inventories in Months of Sales
Economy wide
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
89.12
90.12
91.12
final inventories


Poland: Inventories in Months of Sales
Economy wide
4
3.5
3
2.5
2
1.5
1
89.12
90.12
91.12
total inventories

Chart 11

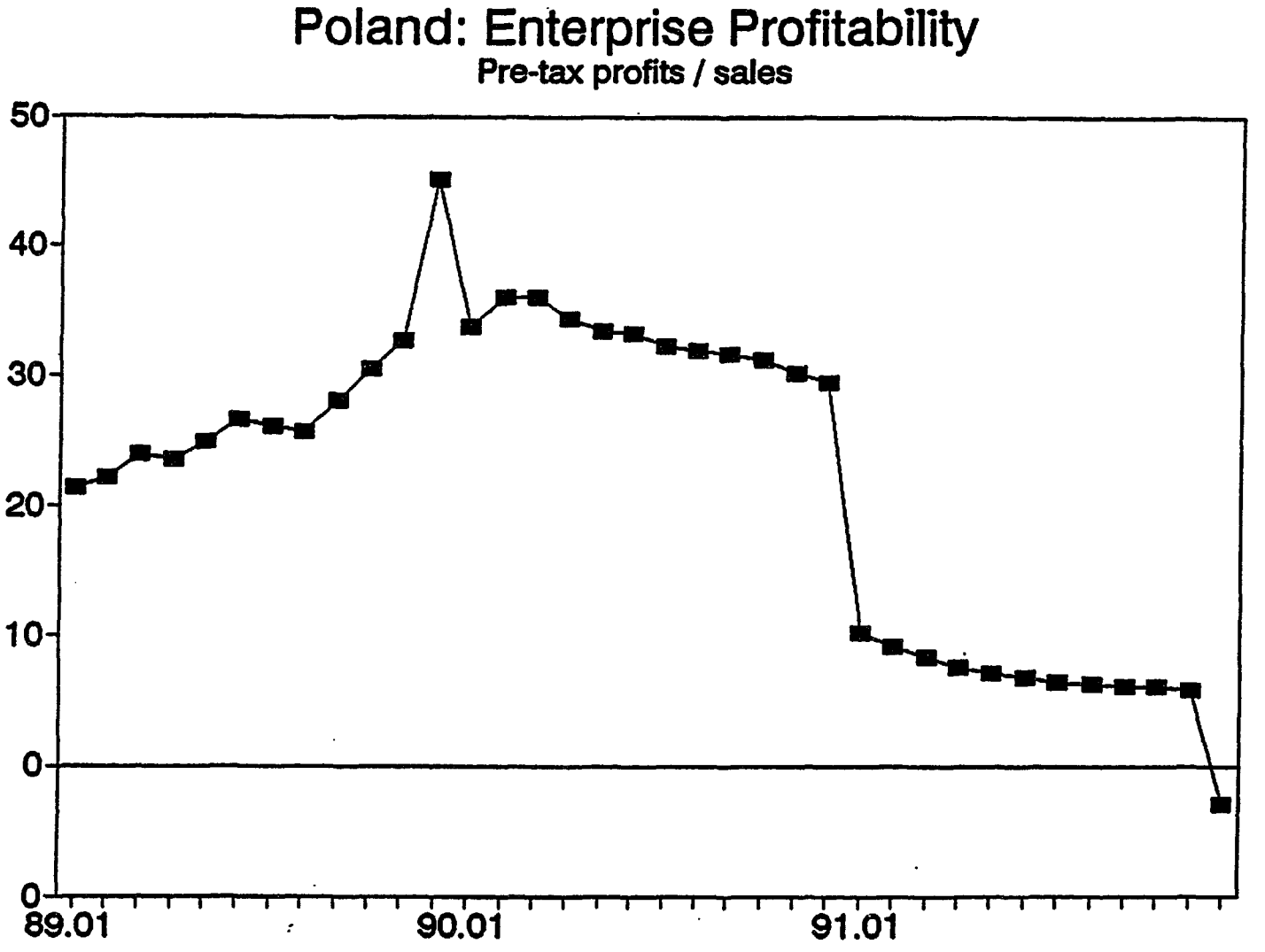
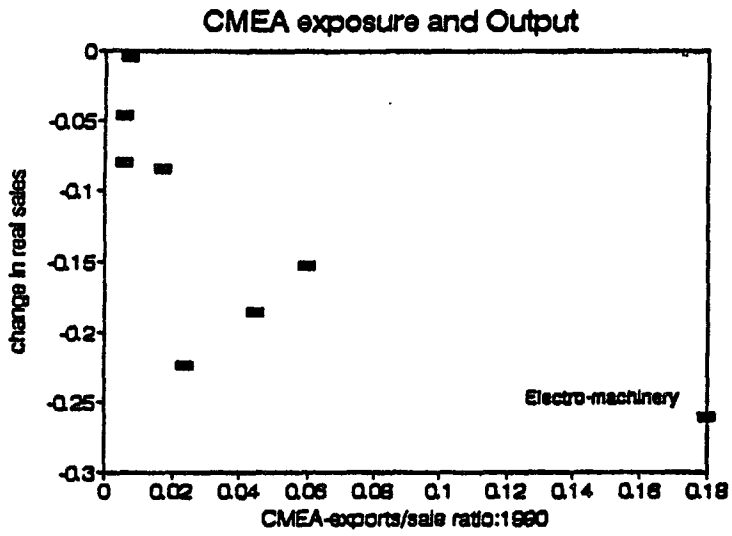
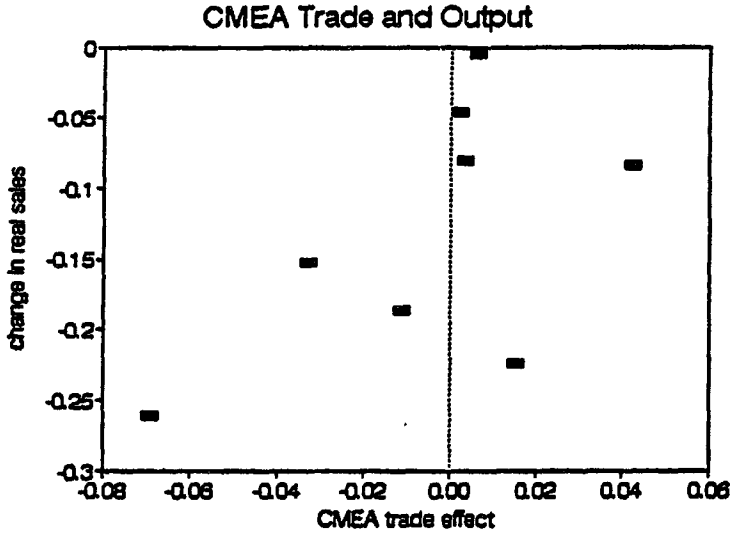
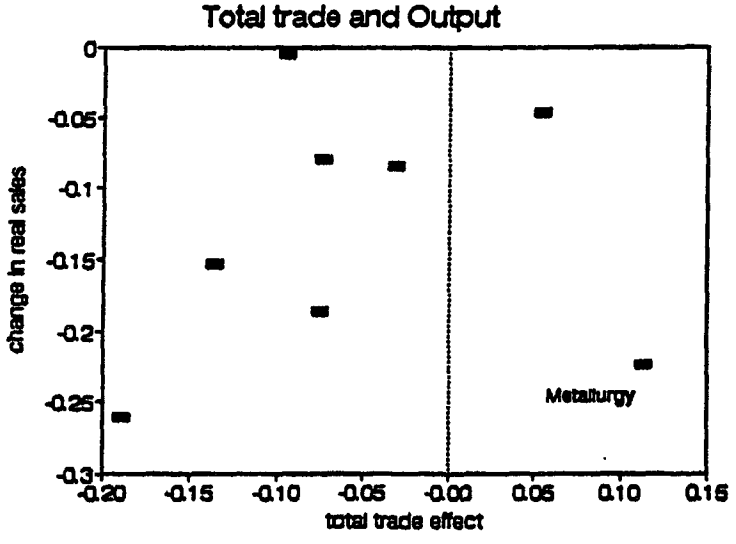

Poland: Enterprise Profitability
Pre-tax profits / sales
50
40
30
20
10
0
0
89.01
90.01
91.01

Chart 12: Poland







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